EMU

Facts, Challenges and Policies

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Overview

Despite thorough preparation, major challenges lie ahead

The launch of the euro on 1 January 1999 has created the world's second largest single currency area in terms of economic size after the United States. The euro area comprises 11 countries which account for some 16 per cent of global GDP, has a total population of 290 million and is substantially less open to foreign trade than its constituent member countries with imports accounting for about 15 per cent of GDP. In comparison, the share of global output produced in the United States is around 20 per cent, with a slightly lower population and degree of trade openness. Despite thorough preparation, it is inevitable that there is a fair amount of uncharted water ahead. On the one hand, a sophisticated institutional framework has been established prior to the adoption of the single currency, co-ordination of economic policies has been strengthened and there are long-standing initiatives to promote close economic integration. On the other hand, long lasting monetary unions among major sovereign nations have never been observed before, without strong political integration. Moreover, the euro area economy is not a well-known entity and past behavioural regularities may change with the advent of the euro. It is difficult, therefore, to predict with confidence the economic effects which will prevail after the introduction of the euro. The purpose of this book is to examine the challenges that the area will confront and the initiatives which would help ensure a successful monetary union.

Current macroeconomic conditions are fairly favourable...

The preparation of EU economies for the launch of the euro took place during difficult economic times. But the efforts have helped put in place a set of fairly favourable macroeconomic conditions. Following several years of relatively sluggish growth, output in the euro area is estimated to have risen by 2.9 per cent in 1998, slightly faster than potential. The pick-up in activity was initially led by robust export growth, but since the second half of 1997 has been underpinned by the recovery of domestic demand, as rising household income and corporate profits have stimulated consumer and investment spending. With activity rising, labour market conditions have improved. Employment is estimated to have risen by just over 1 per cent in 1998, its fastest pace since 1991. Nonetheless, unemployment remains high at 11 per cent of the labour force and large differences persist across member States. Given considerable spare capacity and falling commodity prices, inflation has continued to fall and is currently at its lowest level in over 30 years.

... and may continue to be so over the next couple of years

Favourable prospects are expected to prevail beyond the launch of the euro, although the risks attached to the near term outlook are unusually large and mostly on the downside. The fairly easy monetary conditions, less fiscal restraint and comfortable balance sheet positions in the euro area are forces underpinning the nascent recovery. Higher consumer and investment spending are likely to give the main impetus to growth. Weaker business confidence readings at the end of 1998 and in the first few months of 1999 may, however, limit the strength of investment spending outlays. In contrast, external demand is not expected to contribute much to growth due to the slowdown in economies outside the euro area and the recent fall in euro-area competitiveness. The major risks to these projections concern external developments. Heightened uncertainty and investor nervousness have already spilled over into lower business sentiment. If conditions do not improve in Japan and economic contagion continues to spread to other emerging economies, it could trigger a negative impact on financial and equity markets and hit confidence further, leading to lower consumer spending and particularly hurting investment plans. This would in turn be sufficient to stall the euro area recovery.

EMU excludes sovereign monetary and exchange rate policy...

For individual countries, membership of EMU implies the loss of the sovereign interest rate and exchange rate instruments. This is the main potential cost of joining a monetary union. How big this cost is depends on the frequency and nature of the shocks that will hit the euro area in coming years. The cost is highest if situations arise where substantially disparate monetary conditions would be called for in different countries due to economic disturbances that have uneven impacts across the area (*i.e.* asymmetric shocks). However, the monetary arrangements in place prior to the launch of the euro already imposed such constraints to a substantial extent; and it is likely that at least some asymmetric shocks are more easily absorbed in a monetary union where monetary policy should adopt the stance most appropriate for the area as a whole than under the previous arrangements, which were at times shaped by domestic German policy considerations. Furthermore, even in the case of asymmetric shocks, with monetary conditions constrained to respond to the average conditions in the area as a whole, fiscal instruments can be applied at national levels to promote macroeconomic stabilisation. In the case of shocks that affect all countries more or less equally (*i.e.* symmetric shocks), the loss of monetary autonomy implied by EMU is in principle of less concern, because the area-wide policy would likewise tend to deliver monetary conditions that are appropriate for each country. However, this need not be strictly the case if the transmission mechanism for monetary policy operates significantly differently in the euro area, because then a uniform policy response would not yield uniform impacts. Such differences in transmission mechanisms are likely to weaken over time as monetary union takes hold. Finally, in the case of supply shocks – whether country specific or area-wide – changes in relative prices and production patterns are generally needed. While macroeconomic policies can buffer the income effects of such shocks and buy time for the needed adjustment to take place, they cannot by themselves assure the necessary structural changes. From this perspective, the question is whether EMU provides a more or less favourable environment for the needed supply side adjustments to take place. It is difficult to advance firm conclusions on this point, though almost surely it is policy reforms in individual countries that are the most important instruments for improving adaptability.

... but offers economic benefits

The introduction of the euro delivers a number of benefits. These include reduced transaction costs associated with trade and financial interactions with other euro area countries, no intra euro area exchange rate risk, greater overall price stability and sharpened price transparency. Lower exchange rate risk also implies that interest rate risk premia should be small, and therefore lower borrowing costs in many countries. These benefits will complement the single market in goods and services and are likely to reinforce the long-run efficiencies associated with the single market. The European Commission estimated nine years ago that the direct static benefits of monetary union linked to lower transaction costs could be around ½ a per cent of EU GDP, equivalent to around $40 billion a year. Recent studies have estimated larger gains (up to 1 per cent of GDP). EMU is also likely to generate endogenous consequences such as more transparent prices unleashing stronger competitive forces, possibly fewer policy induced shocks compared with the past as a result of the stability-oriented macroeconomic policy framework and it may serve as a catalyst to speed-up structural changes. These indirect and dynamic benefits are difficult to quantify, but could be more important than the static gains.

The primary objective of monetary policy is price stability

The Maastricht Treaty states that the primary objective of monetary policy is to maintain price stability. And without prejudice to the objective of price stability, the single monetary policy should support general macroeconomic policy. At the start of 1999 the European Central Bank (ECB) assumed full responsibility for monetary policy in the euro area. Responsibilities related to prudential supervision of financial institutions and the stability of the financial system continue to lie with the competent national authorities. The separation of the two functions of monetary policy management and banking supervision ensures a high degree of independence of monetary policy from the stability needs of the financial sector, but stronger co-ordination of supervisory functions would appear desirable. Central bank independence is likely to reduce problems of time inconsistency and to foster credibility of policy announcements. This in turn should make it more likely that price stability – defined in October 1998 as a year-on-year increase in the Harmonised Index of Consumer Prices for the euro area of below 2 per cent – will be maintained. The ECB will face a number of challenges over the next few years. The immediate challenge is how to calibrate monetary policy under conditions of higher "model" uncertainty. The transmission mechanism of monetary policy for the area as a whole is quite uncertain and it could operate differently in different regions of the euro area. There are several potential sources of differential regional responses to a common monetary policy. These include differences in: the composition of output; the degree of openness; the level of development and structure of the financial market; sectoral balance sheet positions; and the flexibility and institutional features of labour and product markets. Some of these will disappear only in the long run. Uncertainty about the effects of monetary policy could imply that monetary policy is not sufficiently pro-active when this would be needed. The intensity of these concerns is likely to ease over the coming years as practical experience with managing monetary policy in the euro area is accumulated and as more is learnt about the transmission mechanism.

Fiscal policies will be formulated in the context of the Stability and Growth Pact

Fiscal policy of countries in the euro area will remain largely under the responsibility of national authorities according to the principle of subsidiarity – a presumption in favour of national sovereignty. However, policy will be formulated in the context of the provisions of the Stability and Growth Pact which, given current budgetary positions of most euro area countries, imposes tight constraints on fiscal policy, especially in the large euro area countries. Despite significant progress on budget consolidation in the run-up to EMU, establishing the full ability to pursue counter-cyclical budgetary policies will in most countries require further sustained consolidation efforts in the years ahead. Based on various empirical approaches it seems that a deficit close to balance over the cycle should provide an adequate fiscal cushion necessary to comply with the Stability and Growth Pact's 3 per cent deficit limit in the event of a recession. But such targets, which are based on the extrapolation of past behaviour, could be subject to greater than usual margins of uncertainty with the "regime change" of EMU. Furthermore, greater ambition in medium-term fiscal targets is warranted by the size of public debt in some countries and by the future fiscal burden associated with population ageing.

The institutions and processes for macroeconomic policy co-ordination are already well in place

The Stability and Growth Pact does not address the issue of whether macroeconomic spillovers in EMU are important enough to justify additional co-ordination of policies over the cycle. In part it will depend on the nature of the shock encountered by the economy. If the shock is country-specific, temporary and does not impinge on the euro average, the appropriate instrument is national fiscal policy, and there is no clear case for co-ordination. If the shock has implications for euro area-wide inflation, the primary instrument should be monetary policy. Monetary policy should also take into account the implications of the fiscal policy stance for prospective price developments, especially if spillovers between monetary and fiscal policies are significant. In particular, it is likely that such spillovers will show up in large exchange rate fluctuations. The institutions and processes for dialogue and co-ordination are already well in place. First, the excessive deficit procedure should bring significant peer pressure to bear on budget policies. Second, there are the "Broad Economic Policy Guidelines" which allow the Council to make country-specific recommendations on both macroeconomic and structural policies, and which reflect the Community's policy consensus. Third, there are the high-level EU policy groups such as Ecofin (Economics and Finance Ministers), the Economic and Financial Committee and the Euro-11 Group (a subgroup of Ecofin specific to EMU).

Exchange rate target zones could compromise the credibility of monetary policy

The extent to which the exchange rate of the euro should be an issue of direct policy concern is an unsettled question. Past movements in euro area competitiveness measures have been fairly volatile. High volatility of the euro could generate protectionist trade policies and exacerbate output fluctuations. Such concerns have led some commentators to advocate target zones for the value of the euro *vis-à-vis* the dollar and the yen. Even supposing target zones between these currencies were agreed it is not clear that wide fluctuations in the euro could be avoided. Given the relatively low weight of the dollar and yen in the euro effective exchange rate, large fluctuations could still be associated with bilateral movements in other currencies. There are a number of problems related to the implementation of target zones. For instance, it would be difficult to get participants to agree on the central exchange rate parity as well as the width of the band. Secondly, a repercussion of subordinating interest rate policy to exchange rate stability is that some volatility would be shifted from the exchange markets to money and bond markets. Furthermore, interest rate moves to keep exchange rates within bands may not necessarily be consistent with the ECB mandate to maintain price stability. There is thus a risk that credibility of monetary policy may be lost, raising risk premia and undoing part of the benefits of monetary union. Even in the absence of target zones, monetary policy should obviously be responsive to exchange rate developments in so far as these impact on inflation prospects.

It will be important to raise the euro economy's adaptability, and reduce its susceptibility to shocks and policies with uneven impacts across the monetary union

The ultimate success of EMU depends upon whether adjustment can take place without putting undue strain on economic activity. In general, a greater degree of labour and product market rigidity prolongs the adjustment process and leads to a bigger impact on output and employment in order to alter relative prices. To reduce regional economic fluctuations and permit a higher potential rate of economic expansion it is important to raise the euro economy's adaptability and reduce its susceptibility to shocks, including policy actions with uneven impacts across the monetary union. In general terms, a monetary union is less susceptible to asymmetric disturbances the more its regions are integrated with each other and diversified within themselves. There are three key forces that promote closer integration. These are the degree of trade interdependence, the degree of intra-industry trade, and closer income linkages, such as increased foreign direct investment or closer financial market interactions. Over the past 20 years each has risen sharply and promoted a closer synchronisation of business cycles across euro area countries. This process has also been facilitated by macroeconomic convergence prior to the launch of the euro.

Close economic integration and less specialisation are two criteria likely to reduce the incidence of asymmetric shocks...

A close degree of integration does not, however, necessarily lower the susceptibility to asymmetric shocks. Some economists have argued that closer integration could result in greater regional specialisation and thus heighten the area's exposure to idiosyncratic shocks. Specialisation may have been limited by national obstacles to trade and high transportation costs. As the Single Market Process is fully implemented, technological innovations reduce these barriers and EMU makes prices more transparent, the incentive to reap scale economies and agglomeration benefits may rise and production could thus become more concentrated in the regions closest to the largest markets. Whether EMU is likely to spur greater regional specialisation or promote more homogenous production structures is an empirical question. Summary measures of specialisation do not show a clear cut trend and the level of specialisation depends critically on the level of aggregation. The common monetary policy may also lead to greater output fluctuations. The variance of inflation has historically been significantly greater than output growth variability in most EU countries. A single monetary policy will limit the size of inflation variability between regions, but with the exchange rate option no longer available and considerable structural differences, output volatility could rise unless relative prices adjust more rapidly than in the past.

... and "shock absorber" mechanisms can limit the potential cost of asymmetric shocks

While it is difficult to judge whether output volatility will rise, the euro area countries will undoubtedly continue to experience economic disturbances that affect a single country or subsets of regions. Such country or region specific supply and demand disturbances could be sources of tension within EMU unless they can be easily absorbed. There are a number of "shock absorber" mechanisms which can limit the potential cost of foregoing national monetary policy independence. Among them the principal ones are more flexible factor and product markets, fiscal policy and greater integration of capital and credit markets which would permit consumption smoothing. Following the traditional optimal currency area theory the emphasis here is on the flexibility of production factors, especially labour, to absorb shocks and the policies which may influence this adjustment channel. Greater overall labour market flexibility would support job mobility and accelerate the pace of wage and price changes at the regional or country level in order to achieve real exchange rate corrections following an adverse shock. If these mechanisms are weak or slow, the necessary adjustments would fall more on employment.

Labour mobility and wage flexibility are important in monetary unions

There is no guarantee that EMU will set forces in motion that would automatically lead to a better functioning of euro area labour markets. The sooner countries implement policies that foster greater labour market flexibility, the more prepared they will be to absorb future shocks. The experience of those countries which have already moved in the direction prescribed by the OECD *Jobs Strategy*, such as the Netherlands and Ireland, suggests that significant gains in terms of better labour market performance can be reaped. The overall EU approach to employment policy is similar to the OECD *Jobs Strategy* in that it stresses the importance of adopting a comprehensive plan and emphasises structural initiatives. The main features of the EU approach are the introduction of Employment Guidelines adopted by the European Council and National Action Plans prepared by member States which set out country-specific employment policy plans consistent with the Guidelines. In December 1998, the European Council endorsed a second set of 22 Employment Guidelines for 1999, divided into four pillars covering employability, entrepreneurship, adaptability and equal opportunities. Some areas of labour market policy receive more focus than others. For instance, training and retraining are stressed. Other aspects, such as wage flexibility, the rules governing eligibility and controls on job search or restrictive employment protection legislation, while receiving little emphasis in the Employment Guidelines, are dealt with in the Broad Economic Policy Guidelines, which outline the overall economic policy strategy of the Union.

Labour mobility is low in the euro area

Even though every citizen of the Union has the right to work or reside in another member State, very few people chose to do so. The number of EU nationals resident in another member State is only 5.5 million out of 370 million, equivalent to 1½ per cent of the population. Labour market adjustment through geographic mobility at the national level is also low in most euro area countries. Rather, adjustment in Europe is largely *via* changes in activity and unemployment. In contrast, labour mobility plays a relatively important role in existing currency areas like the United States, Canada or Australia. Low mobility has also led to unemployment differentials that are large and persistent and hence of a structural nature. The failure of mobility to equalise structural unemployment reflects a range of policy-related and other factors: minimum wages are set at a single rate for all regions of a given member State so that wage adjustments cannot absorb differences in productivity across regions; high replacement rates especially at the low end of the wage scale; restrictive employment protection legislation; housing market obstacles; lack of information about job opportunities in other regions; language barriers and lifestyle differences that may offset the incentive effects of wage differentials; and a limited geographic range for job search requirements without risking the loss of unemployment benefit entitlement.

Although much progress has been achieved to reduce the legal and institutional barriers to mobility, obstacles remain...

While over the past 30 years much progress has been achieved to reduce the legal and institutional barriers to mobility, indirect obstacles continue to act as a restraining force limiting the degree of cross border and intra-country labour flows. The European Commission established in 1996 a High Level Panel to examine the factors limiting intra-EU mobility. The Panel's Report drew attention to certain flaws and lacunae in the rules and their application. These include: limited cross border portability of social protection and supplementary pension rights; an overly zealous interpretation of the requirements and excessive fees to gain legal residency status; lack of comparability and reciprocal recognition of professional qualifications; and restrictions on public sector employment. The economic incentive to move has also weakened. The key economic influences are most closely linked to high levels of unemployment overall, so that willingness to move may not translate into finding a job and income convergence among the euro area countries has reduced average wage differentials across countries and, thus, the incentive to move.

... but mobility seems unlikely to increase greatly over the next few years

It is unlikely that labour mobility will increase greatly within the euro area over the next few years. Labour market adjustment, however, could be sharpened by greater sensitivity of real wages to excess supply and demand conditions across regions and sectors. The capacity of wages to adjust rapidly to a change in labour market conditions is critical. In the context of EMU, slow wage adjustment to changes in labour market conditions may gradually erode domestic firms' competitiveness and, unlike in the past, it will not be possible to delay adjustment through a nominal exchange rate depreciation. The OECD *Jobs Strategy* stressed labour market flexibility and the importance of setting wages in line with productivity improvements so that wages are able to adjust to reflect local conditions.

Incomes policies may help aggregate wage moderation, but may inhibit labour market flexibility

In an effort to restrain wage inflation an increasing number of countries have resorted to incomes policies. Governments have persuaded the social partners to agree on a programme of wage moderation (tripartite agreements) including, in Belgium, the imposition of legal restraints on wages growth. Although aggregate wage flexibility is important, it is generally not adequate to assure a smooth adjustment at the sector and regional level, as a high degree of centralisation may limit the scope for regional and sectoral variation in wage levels and blunt the incentive for geographic or inter-sectoral labour mobility. In addition, incomes policies are often underpinned by policy concessions which sometimes undermine labour market flexibility.

EMU could result in area-wide wage bargaining arrangements

The heightened perception of a single market that the euro will convey is likely to promote a tendency toward EMU-wide wage bargaining. A rather extreme example followed the unification of Germany where the reduction of wage differentials between the levels in the East and West faster than relative productivity gains led to lower overall employment. While this experience was somewhat unique, similar pressures to reduce differentials have surfaced in the past in Italy and Spain. To date, a few unions have tried to co-ordinate EU wide sector agreements. These, however, relate mostly to efforts to impose minimum conditions and reflect concerns that EMU will provoke pressure for competitive wage moderation rather than pressure to emulate the leading country in terms of wage levels and labour regulations.

Product market reforms could spur more rapid and bolder labour market reforms

When markets are not competitive, adjustment may be prevented or slow. EMU, by contributing to transparency and competition should itself improve the functioning of product markets. Further enhancing product market competition and market contestability through deregulation could sharpen the links between wage and price flexibility and allow prices to adjust more speedily to economic disturbances. Moreover, product market reforms could also help reduce the opposition of vested interests or insider power to labour market reforms. For instance, countries which have stringent product market regulation tend to have restrictive employment protection legislation. This suggests that reforming product market regulation would also make it easier to ease the restrictiveness of employment protection legislation and serve as a catalyst for more rapid and bolder labour market reforms. This might well support a virtuous circle, since the full benefits of increased product market competition will only be reaped if sufficiently flexible labour markets allow a swift reallocation of labour.

I. The launch of the euro: economic conditions and prospects

The costs and benefits of monetary union

The launch of the euro on 1 January 1999 has created the world's second largest single currency area in terms of economic size after the United States. The euro area comprises 11 countries which account for some 16 per cent of global GDP. These countries are: Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain. In comparison, the output share of the United States is around 20 per cent. The euro area has a combined population of 290 million and groups an increasingly homogenous set of economies. Differences in per capita incomes, output composition, productivity levels, inflation and government deficits have narrowed over the past decades. But disparate levels of economic development remain sizeable and the degree of integration between countries is still considerably below that within countries. Furthermore, institutional and policy preferences, such as those concerning the labour market are diverse and underlie the wide disparity in regional labour market performance.

EMU excludes both sovereign monetary policy and, by implication, changes in the nominal exchange rate as a means to alter relative prices between countries. Previously, nominal exchange rate movements could serve to support needed changes in the real effective exchange rate to accommodate the impacts of shocks or restore competitiveness in relatively high inflation countries. The loss of national control over the interest and exchange rate instruments is the main potential cost of joining a monetary union. How significant this cost is depends on the nature, size and frequency of economic disturbances, the potential for interest rates within the euro area and nominal exchange rate changes of the euro relative to other currencies to play a part in the adjustment to shocks; and the scope for alternative adjustment mechanisms to operate. If disturbances impinge on a national economy, as distinct from impacting solely on specific sectors or small regions, the loss of a sovereign monetary policy may prove costly, particularly if alternative adjustment mechanisms are weak. In general, however, macroeconomic policies are not well suited to respond to permanent supply side shocks. Such shocks typically require some form of structural change as adjustment must come from relative output prices, real wages, reallocation of capital and labour, or a combination of these. Modifying short-term interest rates and or the exchange rate, would at best ease the initial shock on incomes and allow time for the underlying micro adjustments to take place, but would not be able by themselves to achieve the needed adjustment. On the other hand, macroeconomic stabilisation and monetary policy in particular is more suitable when shocks affect the area as a whole in a more or less symmetric way.

The introduction of the euro will deliver a number of benefits. These include reduced transactions costs associated with trading with other euro area countries, no intra euro area exchange rate risk, greater overall price stability and sharpened price transparency. Lower exchange rate risk also implies that interest rate risk premia should be small in many countries and, therefore, lower borrowing costs. These benefits are likely to accumulate over time as markets become more closely integrated through trade and factor flows. Financial markets in particular, which have still in part operated on a national basis, are likely to adopt a more European focus with the advent of the euro. Demand for their services will come from a broader geographic area and stronger competition may prompt firms to specialise and seek business beyond traditional national boundaries. At the same time, EMU is likely to advance the pace of financial market integration through cross-border mergers or direct expansion. This process is already manifest in hectic merger activity, as financial companies forge strategic alliances and seek greater scale and scope economies. Almost 10 per cent of the cross-border merger notifications made to the Commission in 1997 concerned financial services. On balance, such integration is likely to enhance access to credit as competition increases, which may be of particular benefit to small and medium sized enterprises for whom access to equity markets is in many cases limited.

In 1990, the European Commission estimated that the gains from lower transaction costs alone could be around ½ a per cent of EU GDP, equivalent to around $40 billion a year (European Commission, 1990).[1] These are relatively small gains, but such calculations ignore the dynamic benefits that are likely to stem from greater price transparency and the unleashing of stronger competitive forces. It is much more difficult to estimate the potential impact of such forces, but in general the gains which accrue as a result of a more dynamic economy are thought to be more important than the static benefits. Even more difficult to quantify are the endogenous consequences of monetary union. It is conceivable that EMU could be a catalyst to speed-up structural changes which would boost potential output in the euro economy as well as overall flexibility and lower the potential costs of monetary union. Furthermore, the macroeconomic policy framework that is part of EMU should foster greater economic stability and limit the incidence of policy induced shocks.

Table 1. **Historical experiences with monetary unions**

	Area	Period	Political union	Main characters
Anglo-Scottish Union	England and Scotland	1707-	Later	Network of central banks, with two Scottish private banks licensed to issue currency.
"Anglo-Norman" Union	England, Jersey, Guernsey, Sark, Alderney, Chausey Islands		No	Fixed parities, different currencies legal tender throughout the area, network of licensed issuing banks.
US monetary unification	United States	~ 1850	Earlier	Gradual emergence of a single currency in the 1850s, followed by creation of the Federal Reserve in 1914, network of central banks.
German Union	35 Germanic states and 4 Germanic free cities	1857	Later	Silver standard, fixed parities, subsequently single currency and central bank in 1871.
Italian Union	Italian states	1861	Yes[1]	Silver standard and single currency though full convertibility was not always imposed. Several state banks maintained the right to issue banknotes until it was restricted to the Banca d'Italia in 1926.
Latin Union	France, Belgium, Switzerland, Italy	1865 to 1920	No	Silver standard, single currency, no agreement between central banks.
Scandinavian Union	Norway, Sweden, Denmark	1885 to 1905	No	Gold standard, fixed parities, agreement between central banks.
Belgium-Luxembourg Economic Union	Belgium, Luxembourg	1922 to 1999	No	Fixed parities, single central bank, dual foreign-exchange market, joint policy making institutions.
CFA franc area	French-speaking Africa[2]	1948-	No	Single currency pegged to the FF, network of central banks having current accounts and monetary policy regulated by the French central bank.
Soviet monetary union	Former Soviet Socialist Republics	~ 1991, ~ 1994	No	Single currency, network of central banks.
German reunification	FRG, former GDR	1990-	Simultaneous	Single currency
"Lira" Union	Italy, Vatican City, San Marino		No	Single currency
"Franc" Union	France, Monaco		No	Single currency
"Peseta" Union	Spain, Andorra		No	Single currency

1. Rome became part of the union in 1870.
2. Benin, Côte d'Ivoire, Mali, Mauritania, Niger, Burkina Faso, Senegal, Cameroon, Gabon, Central African Republic, Congo, Chad, Equatorial Guinea.

Source: OECD Secretariat.

Box 1. A historical perspective on currency areas

Over the past two centuries, a number of monetary unions have been created. Many remain in existence today, but some have since been disbanded. This box examines these historical episodes and attempts to elucidate on why monetary unions were formed and, where applicable, the circumstances surrounding their failure. Table 1 lists the monetary unions that have existed, or continue to exist, and their main features. Few of the examples in the table are strict monetary unions, with a common currency and single monetary policy. Rather, especially in the nineteenth century, they were fixed exchange rate regimes with the parity anchored to gold or silver. They are included in the table because the gold and silver standards, together with capital mobility, invoked similar discipline on countries' macroeconomic policies in order to maintain fixed parities for long periods of time.[1]

A currency is generally perceived as an icon of sovereignty. Hence, monetary union is often one of the first acts to follow political union. In many cases, however, monetary unions have also been instituted between sovereign and politically independent states. Examples include the Scandinavian Monetary Union and the Latin Monetary Union established in the last century, and more recently the CFA franc zone in Africa and the Belgium-Luxembourg Economic Union (BLEU). These unions renounced their own currency for both political and economic reasons. The monetary unions formed during the last century had no formal arrangements to co-ordinate economic policies or forge closer economic integration, but the choice of the same metal standard at a fixed parity brought economies closer together. Moreover, capital and labour mobility were high and asymmetric shocks were relatively limited (Holtferich, 1989). The apparent stability and success of these early monetary unions came under intense strain at the beginning of this century and they ultimately disintegrated. Their demise was largely due to the political wish of their member countries. The Scandinavian union was dissolved in 1905 when Norway gained independence and renounced the 1885 agreements (Henriksen and Kaergard, 1995). Similarly, France's refusal to rediscount notes issued by banks in other countries of the currency area led to the Latin Union's collapse in the early 1920s.

The monetary unions created since the first world war arose from stronger political motivation, were less extensive in terms of country coverage, and have tended to be more durable. Examples include Belgium and Luxembourg, German re-unification and the CFA franc area in Africa. In Luxembourg, monetary union arrangements were formalised in a treaty signed in 1921, which established an institutional mechanism to co-ordinate economic policies, share central bank profits and adopt common foreign trade policies (Van Meerhaeghe, 1995). The Belgium-Luxembourg monetary union has worked well with few episodes of strain.

The CFA area was more motivated by political than economic considerations. Since its inception in 1948, membership of the CFA franc zone has fluctuated as countries have left and joined. Currently the area consists of 14 sub-Saharan African countries with two separate currencies, fixed against the French franc and freely convertible, and issued by two central banks.[2] France seeks to maintain the parity and offers its guarantee for borrowings in foreign markets. Capital mobility within the area and with France is high. Until the early 1980s, these countries experienced inflation rates comparable to major industrial countries along with sustained economic growth.

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(continued)

Since then, however, CFA zone countries have recorded low growth relative to the rest of Africa, increasing current account deficits and a build-up in external indebtedness. The deterioration in performance was due to the appreciation of the French franc and therefore the zone's currencies and a substantial reduction in the terms of trade stemming from prolonged falls in commodity prices. Alternative (to the exchange rate) adjustment measures were unable to rectify the external imbalances and in 1994, the member countries and France agreed on a 50 per cent devaluation of the CFA franc (Heidhues and Michelsen, 1995). This monetary union is still active. In the case of German re-unification, virtually instantaneous monetary unification at a unity parity was itself an asymmetric shock to the country and within Europe. The consequences manifested themselves in terms of inflationary pressures, rising interest rates, higher unemployment and a deepening of the budget deficit.

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1. The European exchange rate mechanism, which preceded the launch of the euro, also limited the scope for divergent macroeconomic policies.
2. The Banque Centrale des États de l'Afrique de l'Ouest (BCEAO) covers the eight west African countries and the Banque des États de l'Afrique centrale (BEAC) covers the six central African members. The BCEAO issues the franc *de la Communauté financière d'Afrique* which freely exchanges, one for one, with the franc *de la Co-opération financière en Afrique centrale*, issued by the BEAC. Both currencies are referred to as the CFA franc. France guarantees convertibility through the establishment by each regional central bank of an operations account with the French Treasury.

The extent to which national economies integrate – increasing the benefits and lowering the costs of monetary union – may be more limited than within national borders. Studies have found evidence to suggest that national borders *per se*, segment factor and product markets, whereas intra-country regional borders are almost invisible (*e.g.* Helliwell and McKitrick, 1998; Helliwell, 1996 and 1997; and Bayoumi and Klein, 1997). A number of explanations for this result have been advanced. On the one hand, it is argued that national economic unions are already much more integrated economic areas, but as the process of globalisation continues international economic linkages will develop further and, in the limit, national borders will have no more economic importance than regional ones. On the other hand, currency risks, knowledge of local markets, differentiated costs associated with making and maintaining contracts are factors which may explain the closer integration of national factor and product markets and the separation from international ones.[2] The implication for EMU depends on the explanation. The former view suggests that with time, and provided barriers to trade continue to decline, product market competition is enhanced and labour markets become more flexible, national borders will have less of a segmenting effect on the monetary union area. The latter explanation, however, suggests that there are limits to integration without introducing political union and that national borders will continue to segment factor and product markets and thus set a limit to integration. The above studies identify border effects, but are unable to pinpoint the underlying factors. Based on past experience, monetary union, among major sovereign nations, has either led to strong political integration or dissipated. Box 1 surveys the historical experience with monetary unions over the past two centuries. EMU, however, is novel in many respects, as it has already established a sophisticated institutional framework for the adoption of the single monetary policy, strengthened channels to co-ordinate economic policies (Chapter II) and pursued initiatives which maintain and promote close economic integration (Chapter III).

Four EU economies will not participate in monetary union from the outset (the EU "outs"). The United Kingdom and Denmark negotiated an opt-out, and Sweden and Greece have a derogation from joining the single currency on 1 January 1999. The position of each of these countries as concerns the single currency is outlined in *Annex I.* Since these countries do not participate in monetary union from January 1999, they are not assessed in this study to the same extent as the 11 countries which form the euro area. Indeed, the emphasis throughout this paper is on the euro economy as a whole.

Economic conditions in the euro area

A dismal decade ... until recently

Over the past eight years, economic performance in the euro area economy has been mediocre both by historical comparison and *vis-à-vis* the United States, although better than in Japan. Euro area-wide GDP per capita grew by just 0.7 per cent per year on average between 1990 and 1997 in large part because of a recession in 1992-93, compared with 1.9 per cent in the 1980s. The United States economy also experienced a recession in the early 1990s, but it was milder and was followed by six years of sustained strong growth. With average growth of 1.5 per cent per capita, 12 million jobs were created in the United States between 1991 and 1997, compared with a decline of 3½ million jobs in the euro area.

At the beginning of the decade, the unification of Germany was a major asymmetric shock. It impinged, obviously, on the German economy, largely as a reaction to the inflationary consequences of the way unification was financed, but also on other European countries, because of their commitment to fixed exchange rates in the European Exchange Rate Mechanism (ERM). Most ERM countries ruled out a depreciation against the Deutschmark and effectively imported German monetary policy which, for them, was contractionary because inflationary pressures were smaller in these countries. The policy stance manifested itself in very high real interest rates. At the same time, budget deficits ballooned during the 1992-93 recession following several years of expansionary policies in the late 1980s and early 1990s when growth had been solid, entailing the need for retrenchment and consolidation to meet the deficit criteria. The overall contractionary stance of policy contributed to the depth of the downturn. Not surprisingly, unemployment escalated, rising by nearly four percentage points between 1991 and 1994 to reach over 12 per cent of the labour force, and reaching a level not seen since the 1930s.

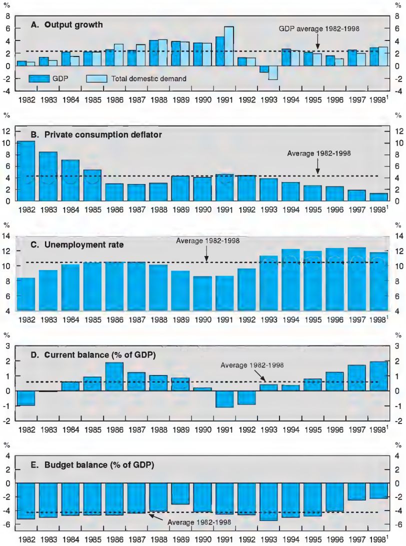
Labour market reform initiatives in response to rising unemployment varied across countries in the euro area, but were too timid to reduce unemployment and in some cases misguided policies may even have increased the structural level of unemployment (OECD, 1997*a*). On the positive side, inflation did eventually fall, to reach a level compatible with price stability and competitiveness improved which, together with relatively weak growth, helped to swing the current account balance into surplus. Fiscal consolidation progressed in all countries spurred by the Maastricht requirement to reduce the budget deficit to 3 per cent of GDP by 1997 and, together with low inflation, led to sharp declines in both short and long-term interest rates.

Growth was propelled by the external sector followed by a buoyant domestic economy

Efforts to prepare EU economies for the launch of the euro were initiated during very difficult economic times. But they have helped to put in place, just prior to the launch of the euro, a set of favourable macroeconomic conditions which will most likely continue over the next couple of years despite the crisis in emerging markets. Demand and output have risen considerably since the fist half of 1997, following several years of relatively sluggish growth (Figure 1 and Table 2). Output in the euro area grew by 2.5 per cent in 1997 and is estimated to have risen by 2.9 per cent in 1998, slightly faster than potential.[3] The recovery stemmed initially from a buoyant external sector. Stronger competitiveness since early 1996, buoyant growth in most trading partner countries and limited spare capacity in some, prompted a surge in euro area exports. Export volumes rose by 11.1 per cent in 1997, lifting the consolidated euro market share in world exports to 17 per cent. While import volume growth also accelerated – nearly doubling to 8.8 per cent – the external sector overall still contributed about a quarter of 1997 GDP growth. Since the second half of 1997, the foreign balance has been relatively less important as an engine of growth, as the pick-up in domestic demand has strengthened import demand. Furthermore, during 1998 the economic contraction in emerging markets and Japan has been buffeting euro area exports.

Even though the volume of exports from euro area countries to South East Asia has dropped substantially and may fall further, the potential impact of the Asian and Russian economic crises on the euro area economy through trade

Figure 1. **Macroeconomic performance**



1. OECD estimates.
Source: OECD Secretariat.

Table 2. **Demand and output**

Percentage volume changes

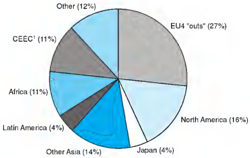
	1980-85	1986-91	1992	1993	1994	1995	1996	1997	1998 estimates
Private consumption	1.2	4.1	1.9	–0.6	1.4	1.9	1.8	1.5	2.4
Government consumption	2.0	3.2	2.8	1.0	1.1	0.9	2.0	0.2	1.3
Gross fixed investment	–1.3	6.2	–0.5	–7.4	2.5	3.0	0.4	1.9	4.4
Public	0.6	4.7	0.5	–3.9	–2.2	–3.0	–5.6	–1.3	2.7
Private residential	–2.8	3.7	2.3	–0.5	5.8	1.7	–0.0	0.2	2.0
Private non-residential	–0.9	7.9	–2.0	–11.5	2.0	5.4	2.0	3.4	5.9
Final domestic demand	0.9	4.3	1.6	–1.7	1.6	1.9	1.5	1.3	2.6
Stockbuilding[1]	–0.1	–0.1	–0.3	–0.5	0.9	0.0	–0.4	0.6	0.5
Total domestic demand	0.8	4.2	1.3	–2.2	2.4	1.9	1.1	2.0	3.0
Exports	5.6	2.8	2.2	11.3	9.1	6.5	7.3	11.1	6.3
Imports	0.9	7.3	1.6	1.5	8.0	5.6	4.7	8.8	8.0
Foreign balance[1]	0.6	–0.4	0.1	1.2	0.3	0.3	0.5	0.6	–0.0
GDP at market prices	1.4	3.7	1.3	–1.0	2.7	2.2	1.6	2.5	2.9
Memorandum items:									
Employment	–0.4	2.7	–1.4	–1.9	–0.6	0.4	0.0	0.4	1.1
Unemployment rate (per cent)	8.5	9.6	9.6	11.3	12.2	11.9	12.3	12.4	11.7
Real personal disposable income	0.6	4.2	1.9	–0.8	0.3	2.1	1.4	1.2	2.3
Personal saving ratio (per cent)	14.7	12.8	13.3	12.9	12.1	12.3	11.8	11.5	11.3

[1] Changes as a percentage of GDP in the previous period.

Source: OECD Secretariat.

Figure 2. **Euro area trade by region**

1994

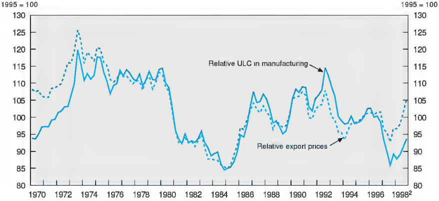


1. Central and eastern European countries

Source: OECD Secretariat.

Figure 3. **Euro area competitiveness**[1]

1995 = 100



1. A fall represents an improvement in competitiveness.
2. OECD estimates.

Source: OECD Secretariat.

linkages is limited. The share of South East Asian and Eastern European markets in total euro area exports (excluding intra-area trade) is relatively small, accounting for less than 20 per cent of the total, and is similar in magnitude to the UK share (Figure 2). More difficult to assess is the effect coming from the realignment of currencies and potential contagion effects still to come. The sharp depreciation of Asian currencies, and more recently of the US dollar and British pound against euro area countries, reversed much of the gains in competitiveness realised between early 1996 to September 1997 (Figure 3). Since late 1997, the euro area exchange rate has appreciated by about 9 per cent in real effective terms. Given the greater importance of the United States and the United Kingdom as competitors to euro countries, the euro area is more likely to lose export market share as a result of these countries' recent depreciations relative to the euro than as a result of the Asian currency depreciations. On the other hand, negative trade linkage impacts from Asia have been so far largely offset by the positive indirect effect on domestic demand from terms of trade gains due to falling commodity prices, the easing of monetary conditions and lower long-term interest rates due to the so called "flight to quality" in response to volatile financial conditions in emerging economies.

The exposure of euro area countries to external trade shocks is uneven, reflecting differences in the importance of third markets among the various euro area countries (Table 3). In Ireland, for example, half of total exports are shipped to the United Kingdom. The slowdown in UK economic activity and the recent

Table 3. **Export share to non-euro area countries as a percentage of GDP**
1997

	EU4		United States	Japan	Russia	Central and Eastern Europe	China	Other S-E Asia	Total[1]
	Total	*of which:* United Kingdom							
Austria	1.9	1.2	1.0	0.4	0.4	3.1	0.2	0.7	12.6
Belgium	7.8	6.0	3.3	0.8	0.6	1.4	0.3	1.9	24.6
Finland	8.1	3.4	2.4	0.7	2.5	2.6	0.6	2.6	24.3
France	2.7	2.1	1.4	0.4	0.2	0.4	0.2	1.1	10.3
Germany	3.2	2.1	2.1	0.6	0.5	1.6	0.3	1.3	14.1
Ireland	19.6	17.6	8.0	2.4	0.4	0.7	0.1	3.5	43.7
Italy	2.3	1.5	1.6	0.4	0.3	0.9	0.2	1.1	11.7
Netherlands	8.0	5.4	2.0	0.5	0.6	0.9	0.2	1.7	19.6
Portugal	3.9	2.9	1.1	0.2	0.1	0.2	0.0	0.3	8.6
Spain	2.1	1.6	0.9	0.2	0.2	0.3	0.1	0.6	8.1
Euro area	3.6	2.5	1.8	0.5	0.4	1.1	0.2	1.2	13.5

1. Excluding intra-euro area trade.
Source: OECD Secretariat.

pound sterling depreciation is likely, therefore, to have a bigger impact on Ireland's exports and output than the direct effects from financial turmoil and recession in many emerging markets. Finland, on the other hand, is relatively more exposed to economic downturns in Russia, and Germany and Austria to Central and Eastern Europe. Overall, exposure to south east Asia is not only relatively small, it is also more similar among euro area countries, which would make a common monetary policy response more appropriate.

The goods and services surplus of the balance of payments rose for the 5th consecutive year in 1997 (Table 4), largely reflecting slower growth in the euro

Table 4. **The current account**[1]

Euro billion

	1980-85	1986-91	1992	1993	1994	1995	1996	1997
Exports of goods	288.0	393.5	448.0	519.2	588.8	659.8	708.6	797.5
Imports of goods	293.6	361.4	438.3	444.6	501.6	550.8	575.1	641.4
Trade balance	–5.6	32.1	9.7	74.6	87.1	108.9	133.5	156.1
Exports of services	84.0	104.9	128.5	145.5	152.3	152.0	165.0	183.1
Imports of services	67.7	89.2	124.5	142.6	149.5	156.3	166.3	184.0
Services balance	16.3	15.7	4.0	3.0	2.8	–4.3	–1.3	–0.9
Goods and services balance	10.7	47.8	13.7	77.6	89.9	104.6	132.2	155.2
Investment income, net	–5.1	–5.3	–18.8	–16.5	–22.5	–22.4	–23.4	–18.7
Private transfers	–1.3	–1.0	–5.3	–0.3	–1.2	–0.3	–1.9	–1.9
Official transfers	–10.7	–21.7	–31.5	–41.1	–47.9	–41.1	–40.7	–39.9
Invisibles, net	–0.8	–12.3	–51.6	–54.9	–68.8	–68.1	–67.3	–61.5
Current balance	–6.4	19.8	–41.9	19.8	18.3	40.8	66.2	94.7
As a per cent of GDP	–0.4	0.7	–0.9	0.4	0.4	0.8	1.2	1.7
Memorandum item:								
Current balance as a per cent of GDP								
United States	–1.1	–2.2	–0.8	–1.3	–1.8	–1.6	–1.8	–1.9
Japan	1.4	2.7	3.0	3.1	2.8	2.1	1.4	2.3
United Kingdom	1.3	–2.3	–1.7	–1.6	–0.3	–0.5	–0.3	0.6
Canada	–1.4	–3.4	–3.6	–3.9	–2.3	–0.8	0.6	–1.5

1. OECD definitions. Intra euro area trade in goods and services are excluded, but no adjustment has been possible for investment income and transfers due to the lack of required information. The adjustment made to traded goods is likely to be imperfect given the current difficulties measuring bilateral trade flows within Europe. While in principle transactions within the euro area should cancel out, in practice, they do not because concepts are not fully harmonised between countries and the quality of reporting varies. This results in double counting or omissions and may exaggerate the euro area current account balance. For instance, when the euro area trade balance is computed on the basis of recorded extra-european trade in goods collected from customs documentation which is generally less susceptible to recording problems the trade surplus is lower by about 0.7 per cent of GDP.

Source: OECD Secretariat.

area than outside it. The current account has been in surplus since 1993, reaching 1.7 per cent of GDP in 1997.[4] In 1998, the balance is likely to have stabilised at under 2 per cent of GDP as the impact of the economic downturn in Asia and Russia, and adverse valuation effects translate into a lower investment income balance and as the lagged effects of lower euro area competitiveness lead to a smaller trade surplus. The rise in the euro area current account surplus has as its main counterpart an even wider current account deficit in the United States, reaching almost 3 per cent of GDP in 1997.

Since late 1997, private consumption and investment have been driving the recovery, ending six years of near stagnation. After decelerating to 1.5 per cent in 1997, growth in private consumption is expected to rebound to 2.4 per cent in 1998, the quickest pace recorded in the euro area since 1991 (Figure 4). Several factors are contributing to this improvement. These include higher growth in real disposable income since mid-1997, reflecting the pick-up in wages and employment, a rise in consumer confidence and low interest rates (Table 5). These forces have improved household balance sheets and lowered gross national savings. Over longer periods of comparison, euro area saving has fallen from about 25 per cent of GDP in the late 1970s to under 20 per cent in 1998. Similar, or even larger, declines have occurred in most other major OECD economies, and typically from a lower starting level. Lower saving ratios are in part to be expected given lower growth and hence slower capital accumulation, lower real interest rates and financial market liberalisation and innovation.

Table 5. **Appropriation account for households**

Percentage changes from previous period

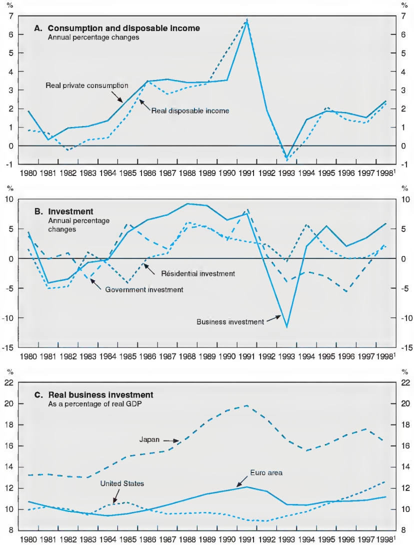
	1993	1994	1995	1996	1997	1998 estimates
Compensation of employees	3.4	2.7	4.5	2.8	2.6	3.2
Other income (including property income)	1.0	5.2	6.5	6.5	4.5	3.5
Current transfers received	6.9	3.7	4.3	3.7	3.4	2.8
Total income	3.6	3.5	5.0	3.9	3.3	3.2
Direct taxes	3.7	1.0	6.0	2.5	4.6	5.3
Current transfers paid	5.1	4.5	4.9	4.7	3.3	0.7
Disposable income	3.1	3.6	4.8	3.9	3.1	3.6
Consumers' expenditure	3.5	4.6	4.6	4.6	3.5	3.8
Saving ratio (level)	12.9	12.1	12.3	11.8	11.5	11.3
Real disposable income	–0.8	0.3	2.1	1.4	1.2	2.3
Real private consumption	–0.6	1.4	1.9	1.8	1.5	2.4

Source: OECD Secretariat.

Low borrowing costs, rising capacity utilisation and higher profits have contributed to a resurgence in business investment, after seven years of low or negative growth. Private non-residential investment rose by 3.4 per cent in 1997 and approximately 6 per cent in 1998 (Figure 4). A re-evaluation of the perceived risk of direct investment in emerging market economies, may also be providing a stimulus to net foreign direct investment within the euro area. In contrast, dwelling investment has so far been subdued. The share of business investment in output has remained broadly unchanged over the past few decades, and at 11.5 per cent is now close to the level in the United States (Figure 4).

Substantial fiscal consolidation has been achieved in euro area countries since 1993, when the euro area deficit reached a peak of 5.5 per cent of GDP (4.4 per cent when cyclically adjusted). Over the following years, the structural deficit was more than halved, with most of the improvement occurring in 1997 (the reference year for the Maastricht criteria). Reductions in the deficit were due to subdued primary spending, to lower interest payments, reflecting reduced borrowing costs and to higher revenues in a number of countries. Where government spending was curtailed or cut, investment outlays were typically reduced, whereas government consumption continued to grow, albeit usually at a slower pace. Real government investment spending has fallen by a cumulative 13 per cent since 1992, and the share of government investment in output has declined to about 2¼ per cent, its lowest level since data have been compiled. This is somewhat below the level in the United States, where similar falls occurred during the 1990s. In Japan, by contrast, the government investment share has remained relatively constant, at around 8½ per cent of GDP over the 1990s and the two preceding decades. On the other hand, real government consumption outlays in the euro area have risen on average by about 1 per cent per annum over the same period. Taken together, consolidation of budget deficits has slowed domestic demand growth. Since 1992, government demand has risen on average by 0.6 per cent per annum, whereas final private demand has grown at more than twice that pace. This pattern is in stark contrast with the previous decade, when growth in private and public demand advanced in parallel. After making progress in fiscal consolidation, the fiscal plans for 1998 incorporate only a slight further reduction in the deficit. Overall, government spending could rise by more than 1¼ per cent in 1998 after being flat in 1997. A modest improvement is likely in the cyclically-adjusted deficit which is estimated to fall slightly below 1½ per cent of GDP in 1998. Looking further ahead, medium-term fiscal pressures will escalate with population ageing (Chapter II).

Figure 4. **Consumption and investment**



1. OECD estimates.
Source: OECD Secretariat.

Labour market conditions improve

Labour market conditions are improving, albeit slowly, reflecting the pick-up in demand across the euro area (Table 6). Employment started to rise in 1995, following three years of job losses, but at less than half a per cent per annum, was insufficient to halt the rise in unemployment to 12.4 per cent in 1997. By 1998, employment growth rose to 1 per cent and the unemployment rate fell by about half a percentage point to 11.7 per cent. All of the jobs created have been in the private sector, and the relatively slow aggregate productivity gains during this upswing suggest that the employment intensity of output has risen. This, in turn, is likely to reflect both overall wage moderation and targeted efforts in many euro area countries to reduce the tax burden on low-skilled labour.

The level of employment, however, still remains considerably below its peak, reached at the beginning of the decade, and is only 12 per cent higher than two decades ago. Moreover, employment growth over the last twenty years has come mostly from increases in public sector employment; business sector employment growth has been much more subdued at an average annual rate of just 0.4 per cent. In contrast, labour market performance in the United States has been substantially more vibrant, with employment rising at a pace more than four times that in the euro area – equivalent to some 40 million jobs created – and virtually entirely in the business sector. Over the same period, labour force growth in the United States has been more volatile than in the euro area, but on

Table 6. **Labour supply and demand**

	1980-85	1986-91	1992	1993	1994	1995	1996	1997	1998 estimates
Percentage changes									
Working age population	1.1	1.7	0.2	0.4	0.4	0.3	0.3	0.2	0.2
Labour force	0.6	2.2	–0.3	–0.0	0.3	0.1	0.5	0.5	0.3
Employment	–0.4	2.7	–1.4	–1.9	–0.6	0.4	0.0	0.4	1.1
Percentages									
Unemployment rate	8.5	9.6	9.6	11.3	12.2	11.9	12.3	12.4	11.7
Participation rate	64.0	64.3	65.0	64.7	64.7	64.5	64.6	64.8	64.9
Employment rate	58.5	58.1	58.8	57.4	56.8	56.8	56.7	56.8	57.2
Dispersion measures[1]									
Unemployment rate	0.54	0.57	0.54	0.54	0.51	0.49	0.47	0.46	0.49
Participation rate	0.09	0.09	0.08	0.07	0.07	0.07	0.06	0.06	0.06
Employment rate	0.11	0.13	0.12	0.13	0.13	0.13	0.13	0.14	0.14

1. Coefficient of variation.
Source: OECD Secretariat.

average risen at a much faster pace, reflecting differences in demographics and labour market policies.

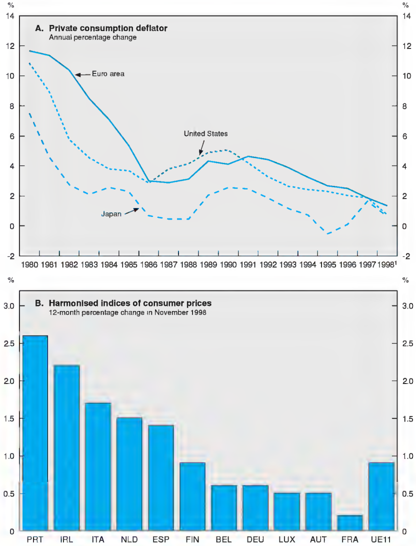
The bulk of unemployment in the euro area is structural. The range of structural unemployment estimates for the euro area is wide, although most, including the OECD Secretariat's, are above 10 per cent. This is more than double the estimate for the United States. And there are substantial differences between countries, depending on labour market policies and institutions. At close to 5 per cent, Austria and the Netherlands are at the low end; Germany, France and Italy – the three largest economies – are close to the average; and at the other extreme is Spain with an estimate of just under 20 per cent. Wide and persistent differences in unemployment rates across regions of the euro area could place stress on the future operation of a single monetary policy. Policies which lower obstacles towards the creation of a more integrated euro area labour market and reduce structural rigidities would help improve the area's ability to adjust to economic shocks (see Chapter IV).

Inflationary pressures are benign

Low labour cost pressures, falling commodity prices and intensifying competitive pressures fostered by closer integration have helped lower inflation (Figure 5). Consumer price inflation in the euro area has remained between one and two per cent over the past two years, with some tendency to decline further. Despite the progress made on the convergence of output growth and inflation rates across EU member States, the current low and falling euro area inflation rate masks some important differences in the degree of inflationary pressures across countries. Signs of overheating have emerged in Ireland, Finland, Portugal and the Netherlands, whereas few inflationary pressures are evident in the major economies of the euro area, which still have considerable slack in product and labour markets. The gap between the highest three and the lowest three inflation rates has risen to 1.8 percentage points, compared with less than one percentage point a year ago and is largely attributable to diverging inflation rates among non-traded goods and services. The potential for inflation to diverge across EU countries is discussed in Box 2.

Broadly effective incomes policies and lower payroll taxes in some countries, and high unemployment in most, have kept wage pressures low (Table 7). Nominal private sector wages rose by just over 2 per cent in the last two years and real wage growth has been close to zero. Labour productivity growth, on the other hand, has averaged about 2 per cent per annum, implying a falling labour share in GDP and a rising profit share.

Figure 5. **Inflation in euro area countries**



1. OECD estimates.

Source: Eurostat and OECD Secretariat.

Table 7. **Wages and prices**

Annual percentage changes

	1980-85	1986-91	1992	1993	1994	1995	1996	1997	1998 estimates
Private consumption deflator	8.5	3.8	4.4	3.9	3.3	2.7	2.5	1.9	1.3
Business investment deflator	7.7	3.0	2.5	2.7	1.4	1.8	0.4	0.5	0.5
Imports of goods and services deflator	8.2	1.1	–1.0	1.1	1.9	3.0	0.8	2.2	–0.8
Earnings and wages									
Wage rate of the business sector	8.5	4.6	7.4	5.5	3.1	4.0	1.7	1.2	1.5
Wage rate of the manufacturing sector	9.9	6.1	7.1	5.4	2.8	3.7	3.9	3.0	2.6
Memorandum items:									
Gross domestic product deflator	8.0	4.1	4.4	3.6	2.6	2.7	2.0	1.4	1.6
Private residential investment	7.3	5.0	4.1	3.1	2.6	2.6	1.2	1.5	1.0
Unit labour costs									
Total economy	6.9	4.1	5.0	4.4	–0.0	2.3	1.2	0.1	0.2
Manufacturing	5.6	3.0	3.9	2.9	–4.6	–1.4	1.5	–0.7	0.1

Source: OECD Secretariat.

Table 8. **Regional inflation rate differentials in selected OECD countries**

	Maximum	Region/city	Minimum	Region/city	Differential
Spain					
1979-88	11.33	Valencia	10.87	León	0.46
1989-98	5.17	Cataluña	4.59	Andalucia	0.58
Germany[1]					
1992-98	2.52	Bayern	2.46	Hesse	0.06
Australia					
1956-65	2.68	Brisbane	2.00	Perth	0.68
1966-75	6.53	Sydney	5.73	Canberra	0.80
1976-85	9.93	Perth	9.50	Sydney	0.43
1986-95	5.45	Adelaide	5.21	Brisbane	0.24
United States					
1956-65	2.13	San Francisco	1.19	Detroit	0.94
1966-75	5.69	New York	4.98	Los Angeles	0.71
1976-85	7.64	Cleveland	6.35	New York	1.29
1986-95	4.00	New York	2.87	Houston	1.13

1. West German regions.
Source: OECD Secretariat and Cecchetti, Mark and Sonora (1998).

Table 9. **CPI inflation differentials across Australian capital cities and Spanish regions: Standard deviation and maximum differential**[1]

	Australian cities (1956-98)						
	Adelaide	Brisbane	Canberra	Hobart	Melbourne	Perth	Sydney
Adelaide	–	1.0	1.0	1.0	0.9	1.0	1.2
Brisbane	1.4	–	0.7	1.0	0.8	1.1	1.0
Canberra	1.4	1.4	–	1.0	0.8	1.1	0.9
Hobart	1.5	1.7	1.1	–	0.7	1.1	1.1
Melbourne	1.6	0.9	1.2	1.0	–	1.1	1.1
Perth	1.6	2.2	2.2	1.2	1.9	–	1.2
Sydney	2.0	1.3	1.7	2.1	2.2	2.9	–

	Spanish regions (1978-98)						
	Andalucia	Canarias	Cataluña	Galicia	León	Madrid	Valencia
Andalucia	–	2.2	0.7	0.7	0.8	1.3	1.0
Canarias	3.1	–	2.2	2.4	2.1	2.2	2.6
Cataluña	1.2	3.4	–	0.7	0.7	1.2	1.0
Galicia	1.2	3.7	1.1	–	0.8	1.3	0.8
León	1.2	3.2	1.2	1.2	–	1.0	0.7
Madrid	1.3	3.1	1.7	2.0	1.1	–	1.0
Valencia	0.9	3.3	1.1	1.3	1.2	1.2	–

1. In both panels, the numbers above the diagonal are the standard deviations of annual inflation rate differentials between two cities or regions over the whole period. The numbers below the diagonal are the largest absolute inflation differentials observed during the sample period. In the latter case, the inflation rate is measured as a three -years moving average in order to smooth the effect of indirect tax changes on regional inflation differentials.

Source: OECD Secretariat.

Box 2. To what extent will inflation diverge in euro area member countries?

It is difficult to envisage persistent and large inflation differentials in a monetary union, even though sustained differences in inflation rates are plausible provided this reflects a catch-up process (see below). Short-term differentials could still be significant, due to differences in the relative cyclical position or tax changes. Differences in regional price movements within existing monetary unions provide a gauge of the potential divergence of inflation rates in the euro area, and by implication, changes in regional real exchange rates. Concerning the latter, Bayoumi and MacDonald (1998) find no evidence of mean reversion in regional relative prices in Canada and the United States over the past 30 years. Based on unit root tests, the OECD Secretariat also finds evidence of permanent changes in regional relative consumer prices in Australia and Spain.

These findings, however, probably reflect gradual long-term changes in relative prices of non-traded goods. In fact, large inflation differentials have seldom been observed and when they did happen, they were very short-lived episodes. For instance, the differential between East and West Germany following unification was initially almost 10 per cent per annum, but fell quickly to less than 1 per cent. In the United States, modest differentials of between 0.7 and 1.3 per cent per annum among state consumer price indices have been apparent over the last 30 years (Table 8). Likewise, the average differential between the lowest and highest inflation rate in seven Australian cities and Spanish regions over ten year periods is well below 1 percentage point and, in both countries, the standard deviation of regional bilateral inflation differentials has ranged between 0.7 and 1.2 percentage points (Table 9). Much smaller inflation differentials were experienced in the monetary union between Belgium and Luxembourg, and that between Ireland and the United Kingdom which lasted almost 3 decades and ended in 1978. In both cases, the average annual CPI inflation differential was less than 0.4 percentage points.

While inflation differentials in economically more homogenous areas are unlikely to accumulate to large price level differences, inflation differentials could persist between the more and less advanced EU countries. The Balassa/Samuelson model (1964) suggests that productivity differentials between traded and non-traded goods would not only generate sectoral inflation differentials, but differentials between countries at different stages of economic development. Based on an extended Balassa/Samuelson model and historic trends in productivity and wages, Alberola and Tyrväinen (1998) estimate that sustained inflation differentials of 2 percentage points could exist between the more and less advanced euro area countries.

Economic prospects are favourable, but the risks are large

Broadly favourable economic conditions accompanied the launch of the euro and are expected to prevail beyond to the year 2000, due to a number of forces that should underpin and sustain the recovery in the euro area. These include accommodative monetary and fiscal conditions. Short-term interest rates in the euro area have converged steadily and are currently at low levels, compared with the past. The average short rate for the area is 3.2 per cent, which corresponds to a real rate of less than 2½ per cent. Long rates have also fallen sharply, partly reflecting expectations that inflation will remain low and partly reflecting uncertain conditions in emerging markets which have tilted portfolio allocations more towards low risk assets, such as European bonds. The euro area long rate has dropped by some 250 basis points since 1996 and more than halved since 1992. Those countries with an historically high risk premium have typically experienced the largest falls in interest rates. Looking ahead, given benign inflationary pressures in Europe, the base rate is assumed to fall further in the first half of 1999 and to stabilise for the rest of the year before edging up slightly during 2000 as the expansion in the euro area strengthens again. Nonetheless, the yield curve is expected to flatten, but remain positive. OECD projections are based on the technical assumption of unchanged exchange rates so that given the projected interest rate profile, monetary conditions are expected to remain accommodative. At the same time, the stance of fiscal policy has swung from contractionary in 1997, to broadly neutral in 1998 where it is assumed to remain over the next two years, with the cyclically-adjusted deficit projected to fall slightly from its current level of 1.6 per cent of GDP. However, these stimulative factors, as well as weaker commodity prices, are not expected to outweigh the drag from slower foreign demand and the already realised loss in competitiveness.

Reflecting these forces, the OECD projections finalised in November 1998 show GDP slowing towards its potential rate in 1999, but then output accelerates somewhat the following year. GDP could rise by 2½ per cent in 1999 and 2¾ per cent in 2000 with inflation at about 1½ per cent over the period (Table 10). This growth profile implies rising capacity utilisation, although it is likely that some cyclical slack will still persist in the year 2000. Business investment is projected to grow by 6½ per cent in 1999 and government and residential investment at a more modest, but still respectable pace. High consumer confidence in the euro area and a pick-up in household real disposable income should support solid growth in consumer spending. On the other hand, external demand is not expected to contribute much to growth. The recent fall in euro area competitiveness, stemming from weaker currencies in emerging markets, the United States and the United Kingdom, and a slowdown in UK activity, could reduce the growth contribution of net trade to close to zero in both 1999 and 2000.

As the recovery continues, demand for labour is projected to continue to rise more rapidly than labour supply so that the unemployment rate could fall by about half a percentage point, to reach a still high 10.8 per cent in 2000. This level is somewhat above the estimated structural rate and unlikely to generate wage

Table 10. **Short-term projections**

Percentage changes from previous year[1]

	1997	1998	1999	2000
Private consumption	1.5	2.4	2.5	2.6
Government consumption	0.2	1.3	1.4	1.4
Gross fixed investment	1.9	4.4	4.3	4.5
Public	–1.3	2.7	3.4	2.8
Private residential	0.2	2.0	3.3	3.5
Private non-residential	3.4	5.9	5.0	5.4
Final domestic demand	1.3	2.6	2.7	2.8
Stockbuilding[2]	0.6	0.5	–0.0	–0.1
Total domestic demand	2.0	3.0	2.6	2.7
Exports	11.1	6.3	4.4	5.3
Imports	8.8	8.0	5.8	6.0
Foreign balance[2]	0.6	–0.0	–0.1	0.1
GDP	2.5	2.9	2.5	2.7
Private consumption deflator	1.9	1.3	1.4	1.5
GDP deflator	1.4	1.6	1.5	1.6
Employment	0.4	1.1	1.0	1.0
Labour force	0.5	0.3	0.4	0.5
Unemployment rate[3]	12.4	11.7	11.3	10.8
Personal saving ratio (per cent)	11.5	11.3	11.1	11.0
Current account, per cent of GDP[4]	1.7	1.9	2.0	2.0

1. The 1998 figures are OECD estimates.
2. As a per cent of GDP in the previous year.
3. Level, per cent of labour force.
4. Intra euro area trade in goods and services are excluded, but no adjustment has been possible for investment income and transfers due to the lack of required information.

Source: OECD (1998a), *Economic Outlook No. 64.*

pressures, although in some regions of the monetary union area labour market conditions are tight and could result in higher local wage increases.

The major risks to these projections mainly concern external developments. The economic collapse in Asia, financial turmoil in Russia and the risk of contagion in Latin America and within euro area countries have buffeted worldwide financial and equity markets. While trade linkages between the euro area and these economies are small, heightened uncertainty and investor nervousness have already spilled over into lower business sentiment. If conditions do not improve in Japan and economic contagion spreads to other emerging economies, it could trigger a negative impact on financial and equity markets, hit confidence further and translate into lower consumer spending and particularly hurt investment plans, which in turn would be sufficient to stall the euro area recovery. If negative forces were to continue and interact, as they did already to some extent during 1998, output growth could slow to 1 per cent in the euro area (*Economic Outlook 64*). Since these projections were finalised some negative forces have in fact materialised with the financial crisis in Brazil, and business confidence in the euro area has weakened. These developments have partially outdated the OECD Outlook published in late 1998 and will be reflected in weaker economic growth

Table 11. **The sensitivity of the euro area to different shocks**

Differences from baseline in per cent

	Year 1	Year 2
A. Effects of a 10 per cent nominal effective appreciation of the euro[1]		
GDP level	–0.7	–1.1
Inflation (consumer price deflator)	–0.6	–0.6
Current balance (% of GDP)	–0.3	–0.6
B. Effects of a 1 per cent decline in domestic demand in OECD non-euro area and a 2 per cent decline in imports of non-OECD area[2]		
GDP level	–0.5	–0.4
Inflation (consumer price deflator)	–0.1	–0.3
Current balance (% of GDP)	–0.3	–0.3
Market growth	–2.8	–2.3
C. Effects of an increase of public investment by 1 per cent of GDP[3]		
GDP level	1.2	0.8
Inflation (consumer price deflator)	0.2	0.6
Current balance (% of GDP)	–0.3	–0.3
D. Effects of a reduction in real interest rates by one percentage point		
Floating exchange rate[4]		
GDP level	0.7	1.3
Inflation (consumer price deflator)	0.3	0.4
Current balance (% of GDP)	–0.1	0.0
Fixed exchange rate[5]		
GDP level	0.4	0.6
Inflation (consumer price deflator)	0.1	0.1
Current balance (% of GDP)	–0.1	–0.2

1. Assumes government expenditures and interest rates unchanged in real terms.
2. Assumes fixed nominal exchange rates. Government expenditures and interest rates are kept unchanged in real terms relative to baseline.
3. Assumes fixed nominal exchange rates and interest rates unchanged in real terms.
4. Assumes government expenditures and long and short-term interest rates unchanged in real terms after the initial reduction. In this case, exchange rates are flexible: a one percentage point fall in the interest rate differential *vis-à-vis* other countries is assumed to induce a 2.5 per cent depreciation of the effective exchange rate.
5. Assumes government expenditures and interest rates unchanged in real terms. In this case, nominal exchange rates are assumed to remain fixed.

Source: Simulation by the OECD's Interlink model.

prospects once new projections are finalised towards the middle of 1999. As an approximate order of magnitude euro area GDP growth in 1999 is now more likely to be in the order of 2 per cent.

It is difficult to gauge the likelihood of such scenarios, since little is currently known about the euro area economy, because developments in world financial and equity markets change suddenly, and because confidence itself is an amorphous concept. But ready reckoners can provide approximate orders of magnitude. The OECD Interlink model was used to estimate the impact of different shocks and policy measures on euro area GDP, inflation and the current account balance (Table 11). The results suggest that the euro area is fairly sensitive to exchange rate movements. Relative to baseline, a 10 per cent appreciation of the euro – about the same change as observed during 1998 –, lowers area-wide GDP by just over 1 per cent after two years. The impact is obviously bigger in euro area countries with relatively large trade shares with third countries (*e.g.* Ireland). Changes in domestic demand (by 1 per cent) in major euro trading partners also have a sizeable impact on GDP, inflation and current balances. Macroeconomic policies implemented at the same time in all euro countries would be fairly effective in offsetting negative shocks coming from the outside, as common policies imply a stronger response due to the effect of trade and investment multipliers. An increase in government investment spending by one per cent of GDP would boost output by nearly one per cent after two years, while a cut in interest rates by 100 basis points would lift output by slightly more (1¼ per cent) assuming a floating exchange rate regime and uncovered interest parity. When a fixed exchange rate regime is assumed, the impact from lower interest rates is more than halved.

II. Macroeconomic policies

The Treaty on European Union, signed in 1992, called for sustained convergence in economic performance and close co-ordination of member States' economic objectives, and set out a timetable to achieve these goals. Convergence towards low rates of inflation and a sound fiscal position were two of the four economic convergence criteria to be fulfilled before countries could join monetary union. At the Community level, policy co-ordination has been strengthened with the annual "Broad Economic Policy Guidelines", the "excessive deficit procedure" and the Stability and Growth Pact, while the European Monetary Institute laid the groundwork for the start of the European System of Central Banks (ESCB). The rationale for deepening co-ordination at the EU level and recent initiatives in this respect are discussed in Box 3.

A lot of effort went into the preparation of the euro's launch. Concerning macroeconomic conditions, monetary union got off to a good start, with unemployment falling, inflation at a 40-year low and public finances fairly sound (Chapter I). Furthermore, the European Central Bank set-up follows closely the Continental European central bank model and governments have pledged to aim at balance in the government accounts. Finally, the EU countries have already lived in a quasi-fixed exchange rate regime for quite a while now, even though this experience was – at times – not an easy one for some countries.

It is inevitable that there is also a fair amount of uncharted water ahead, despite all the preparatory efforts. Contrary to fully-fledged federations, virtually all fiscal competencies will remain at the national level, with the European Central Bank setting monetary policy for eleven sovereign states. This raises familiar issues in a new context – for instance, how to safeguard monetary policy credibility or how to ensure fiscal prudence – but also new ones, for example about the need for stronger policy co-ordination at the EU level or about setting policy for an area which still shows a fair amount of structural diversity despite the closer integration achieved over the last forty years. Monetary union also raises a number of structural policy issues. The Community has launched several initiatives to raise flexibility in labour and product markets. Greater flexibility would appear important as it would make it easier to absorb adverse national economic

Box 3. Policy co-ordination within the EU

Economic policy making powers at the EU level differ significantly from those in fully fledged federations because competencies are limited. By contrast, most EU members have governments that are large compared with states in federations and member countries have retained considerably more economic decision-making powers. This balance of power has, however, changed gradually over time: a common agricultural policy was largely in place in 1965; a customs union was established by 1968; the single market was finally achieved in 1993; and a single monetary policy is in place since 1 January 1999. In addition, the number of shared competencies has increased from 7 in the Rome Treaty to 16 in the Maastricht Treaty. While the EU budget has remained very small (less than 1.3 per cent of area-wide GDP), centralised regulatory functions have increased significantly.

The theory of fiscal federalism provides many insights into the way expenditure, revenue and regulatory functions should be allocated between different levels of government.[1] The theory provides a strong case for decentralisation, except for a few core public services; and there is a strong presumption that macroeconomic policies and some redistribution functions should be carried out at the central level. Policies should only be co-ordinated at the central level if there are significant policy spillovers between jurisdictions, if there exist economies of scale and indivisibilities, and if risk pooling across the area can enhance welfare. Concerning the decision-making process, central action could be superior to looser forms of co-ordination, if rapid decision-making is required.

Policy making in the EU is inspired by these principles. The subsidiarity principle, enshrined in the Maastricht Treaty, states that policy decisions at the national level should be the norm and those at the Community level the exception.[2] Community-wide action should occur only if an objective can be better attained at the Community level, central action should be commensurate with the objective, and implementation of EU-wide policies should be decentralised, whenever feasible. Apart from macroeconomic policies in the context of EMU, strong spillovers clearly exist in the case of the internal market and associated policies, for instance, trade policy, as countries deviating from the common set of policies could distort competition. More recently, the case of tax competition has received considerable attention. However, given that the EU is a very large economic area, one would expect that at the regional level the benefits of co-ordination of other policies would often be smaller than the costs. In addition, given the diversity in member countries' interests, histories and institutions, policy preferences still differ considerably more than in mature federations. These considerations argue for a fairly high degree of institutional flexibility in the ongoing deepening and widening of the Community.

Arrangements allowing flexibility are not only in line with theoretical considerations, but also with current practice. While not imposing concrete policies, several initiatives in recent years have aimed at policy co-ordination by consensus building, learning best practice, and, in some cases, exercising peer pressure, including the possibility of applying sanctions in the case of the Stability and Growth Pact. In this context the "Broad Economic Policy Guidelines" stand out. The guidelines – issued annually since 1993 – are a key reference document for the conduct of economic policy as they represent a synthesis of the Community's consensus on economic policies.

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They cover both macroeconomic and structural policies, outline Community goals and also give country-specific recommendations. Other examples of policy co-ordination exercises include EU-wide benchmarking of industrial performance and co-ordination of research efforts. The latest initiatives concern employment (through an *ex ante* application of the new employment title in the Amsterdam Treaty, as agreed at the European Jobs Summit in Luxembourg in November 1997) and structural reforms (on the basis of an exercise of monitoring agreed upon at the European Council meeting in Cardiff in June 1998). These are examined in greater detail in Chapter IV.

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1. For a review, see Hoeller, Louppe and Vergriete (1996).
2. This is not to say that the current competencies of the EU would all stand the subsidiarity test. The guidelines for applying the subsidiarity principle do not address the question of whether current Community competencies should be scrutinised and eventually reassigned to lower levels of government.

disturbances. This chapter focuses on the macroeconomic policy challenges, which will face the euro area in the years ahead and the following chapters address structural policy issues.

Monetary policy: ensuring price stability[5]

From 1 January 1999, the Eurosystem assumed full responsibility for monetary policy in the euro area. Unlike arrangements elsewhere in the OECD, it sets monetary policy for eleven sovereign countries. Furthermore, the euro area economy is not a well-known entity and even if behavioural regularities had existed in the past, they may change with the advent of the euro. The following discusses, first, the current stance of monetary policy for the euro area, focusing on the monetary policy indicators usually presented in OECD country surveys. Policy issues are discussed next, focusing on central bank independence, accountability and transparency, and on the monetary policy strategy as well as future challenges for monetary policy.

The stance of monetary policy

The stance of monetary policy over the 1990s has been shaped by the reunification of Germany, conjunctural conditions and convergence of short-term interest rates in peripheral countries towards the level in Germany. In the early 1990s, monetary policy in the euro area was very tight largely as a reaction to the inflationary consequences of the way German unification was financed as well as considerable hikes in short-term interest rates in some countries to fend off speculative pressure. Until 1994, real short-term interest rates were far above US rates (Table 12), the yield curve was inverted and money growth was very slow. Over this period, the real effective exchange rate appreciated significantly. During the 1992-93 recession, monetary policy eased. This was helped by the widening of the ERM bands, following the crisis of September 1992 that lead to the exit of the United Kingdom and Italy. Easing continued thereafter, with a short interruption in 1995, accompanying the slow, but steady disinflation process – inflation declined from nearly 5 per cent in 1990 to almost 1 per cent in 1998. While interest rates in real terms have not changed much in Germany since 1995, rates fell sharply in peripheral countries with high interest rate premia, due to falling inflation, lower fiscal deficits and the growing probability of EMU taking place as scheduled. Convergence towards a single policy rate was virtually complete before the launch of the euro, following a co-ordinated decision to lower the

Table 12. **Real interest rates in international comparison**

Nominal interest rates minus inflation[1]

	1992	1993	1994	1995	1996	1997	1998 1st half	1992-97 average	1992-97 Differential against the euro area
Euro area									
Short-term	6.8	5.0	3.8	3.7	2.8	2.9	2.5	4.2	..
Long-term	6.4	4.9	5.2	5.9	5.0	4.2	3.5	5.3	..
United States									
Short-term	0.7	0.4	1.9	3.2	3.1	3.2	3.9	2.1	–2.1
Long-term	4.1	3.2	4.7	4.4	4.5	4.7	4.2	4.3	–1.0
Japan									
Short-term	2.7	2.4	2.1	1.9	1.0	0.0	–0.2	1.7	–2.5
Long-term	4.4	3.6	3.8	3.0	2.8	2.2	1.7	3.3	–2.0
United Kingdom									
Short-term	5.6	3.2	4.0	4.1	2.8	4.1	5.2	4.0	–0.2
Long-term	4.9	3.7	4.8	5.2	5.2	4.7	3.8	4.8	–0.5
Canada									
Short-term	5.3	3.7	4.3	4.4	3.0	3.0	5.1	4.0	–0.2
Long-term	6.6	6.0	7.0	7.1	6.6	5.9	5.2	6.5	1.3

1. Real short-term interest rates are measured by deducting the annual percentage change in the GDP deflator from nominal rates and real long-term rates by subtracting the low frequency component of the annual change of the GDP deflator using the Hodrick-Prescott filter.

Source: OECD Secretariat.

short term interest rate to 3 per cent, which is almost 1 percentage point below the level at the beginning of 1998.

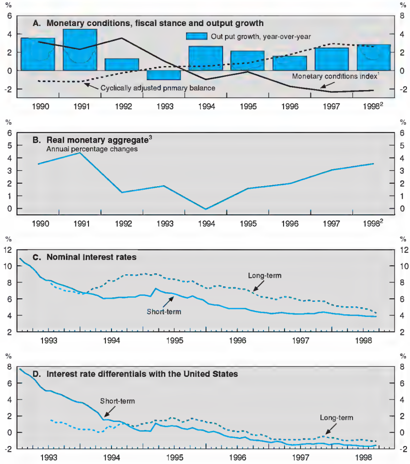
Currently, the fairly easy stance of monetary conditions in the euro area is a force underpinning the recovery. Both short and long-term interest rates are low in historical perspective, and also *vis-à-vis* the United States and the EU "outs" (Figure 6). Long rates have also dropped sharply, initially in response to fiscal consolidation and lower inflation, and in some countries due to "convergence play". More recently, with volatile financial conditions in emerging market economies, government bond rates fell further, due to a shift in desired portfolio composition towards relatively less risky assets – the so called "flight to quality". However, the low long rates associated with the "flight to quality" are likely to be transitory and could, at least, partly reverse once more stable conditions return to emerging markets. Despite historically low long rates, the slope of the yield curve remains positive.

The large change in monetary conditions over the last few years is partly captured by a monetary conditions index which combines real interest rate and exchange rate developments (Figure 6).[6] The construction of the index reflects the idea that in an open economy, the effect of a change in domestic interest rates on aggregate demand can be either reinforced or partly offset by exchange rate movements. Figure 6 shows that monetary conditions were very tight in the early 1990s. While easier monetary conditions helped spur the recovery in 1994, tighter conditions during part of 1995 coincided with a considerably faster pace of fiscal consolidation and probably reinforced the slowdown in activity which started in early 1995. The significant further easing, which started during 1996, has been critical in boosting growth above potential since early 1997. Summing the broad monetary aggregates used by the OECD, shows that M3 growth for the area was depressed between 1992 and 1997, reflecting low demand and high interest rates as well as structural portfolio shifts in some EMU countries.[7] Money growth started to recover in mid-1997. Based on ECB statistics, annual M3 growth has ranged between 4 and 5 per cent over the past year.

It is still difficult to interpret movements in monetary aggregates, due to the problems in constructing a measure which captures similar liquidity characteristics of deposits across countries in the euro area. Concerning the past, several papers suggest that estimates of a broad euro-area money demand function yield plausible and stable parameters and actually have superior standard error and stability properties than national aggregates (Kiel Institute of World Economics, 1998; Monticelli and Strauss-Kahn, 1992; Fagan and Henry, 1998; Monticelli and Papi, 1996). If these properties of money demand were to continue following the launch of the euro it would constitute a strong argument in favour of giving a money supply rule a prominent role in ECB monetary policy. It is, however, hard to judge whether the apparent stability of the historical money demand relation-

Figure 6. **Monetary conditions**

Per cent



1. The weight for the real interest rate is 1 and the weight for the real exchange rate is 0.15. They were derived from simulations of the OECD Interlink model. The calibration of the weights is subject to the usual criticism of being highly model specific and potentially sensitive to the nature and size of the shock.
2. OECD estimates.
3. Based on adding up broad money in the Euro area countries. Broad money is defined as M2 for Finland, Italy and Portugal, as ALP2 for Spain and as M3 for the other countries. Deflated by the GDP deflator.

Source: OECD, *Main Economic Indicators* and OECD Secretariat.

ship in the euro area will continue with the regime shift that EMU implies or even whether past regularities were not simply a statistical artefact related to aggregation. Aggregation tends to even out shocks over countries leading to better statistical fits and making structural breaks more difficult to detect. Past relationships may also have been stable in some continental European countries, due to the relatively limited extent of financial innovation which contributed to a higher ability to control money aggregates compared with the experience of most non-EU OECD countries where innovation and competition were stronger. EMU and the full implementation of the Single Market are likely to enhance competition and hence similar developments may yet emerge in the euro area, possibly shifting the demand for euros.

Feedback-rules from inflation to short-term real interest rates, such as the Taylor rule (1993), can shed additional light on the current and prospective level of interest rate developments in the euro area.[8] Such rules have become widely used to assess the level of policy-controlled interest rates, including for the euro area.[9] Results based on the Taylor rule – assuming that the implicit inflation target for the euro area is 2 per cent and setting the equilibrium real interest rate at 3.55 per cent (the average euro-area real interest rate during the 1990s) – suggest that short-term rates were too high in the early 1990s, particularly in the aftermath of German unification, but have been broadly consistent with the rule since early 1998.

Such measures, however, suffer from several shortcomings. First, monetary policy clearly focuses on future rather than current inflation, and the simple Taylor rule implicitly assumes that monetary authorities take no information about future inflation into account other than that contained in the output gap and current inflation.[10] To overcome this simplification, forward-looking rules have also been calculated based on the difference between the OECD's inflation projection one year ahead and the inflation target (Table 13).[11] The projections

Table 13. **Short-term interest rates and alternative Taylor rules**

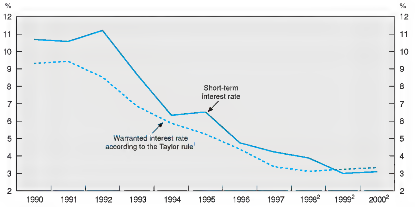
	Actual/forecast short-term interest rate	Standard Taylor rule		Forward-looking Taylor rule	
		IReq = 3.55%	IReq = 2.5%	IReq = 3.55%	IReq = 2.5%
1997 I	4.2	3.7	2.6	4.3	3.2
1997 II	4.3	3.7	2.7	4.4	3.4
1998 I	4.1	4.3	3.3	4.7	3.6
1998 II	3.7	4.6	3.5	4.8	3.7
1999 I	3.4	4.4	3.4	4.7	3.6
1999 II	3.4	4.4	3.3	4.7	3.6

Source: OECD Secretariat.

take into account other elements that affect the outlook for inflation. This formulation of the Taylor rule suggests that the level of short-term real interest rates was consistent with maintaining low inflation in 1997, but fails to predict the fall in the short rate through 1998.

Calculations of interest rates based on the Taylor rule are very sensitive to the choice of the equilibrium real interest rate. In particular, limiting the estimation period to the 1990s may be problematic insofar as this was a period of disinflation where it would have been expected that real interest rates would be above average in most countries (Gagnon, 1997). Taking a longer time perspective, the 3.55 per cent equilibrium interest rate level calculated by the BIS appears high, especially when compared with the estimated euro-area growth potential. However, if an allowance is made for the risk premia included in the interest rates of some EMU member countries during the past, the assumption about the equilibrium interest rate level becomes more reasonable. If, nevertheless, the equilibrium rate for the euro area is taken to be the average of German real short-term rates since 1960 (2.5 per cent) then the level of interest rates consistent with the Taylor rule is materially different (Table 13). By this standard, short-term rates were too high during most of the 1990s, including the most recent period (Figure 7).

Figure 7. **Taylor rule in the euro area**



1. The assumed equilibrium real interest rate equals 2.5, the inflation target is 2 and the weight for inflation is 0.8 and for the gap 0.2.
2. OECD estimates.

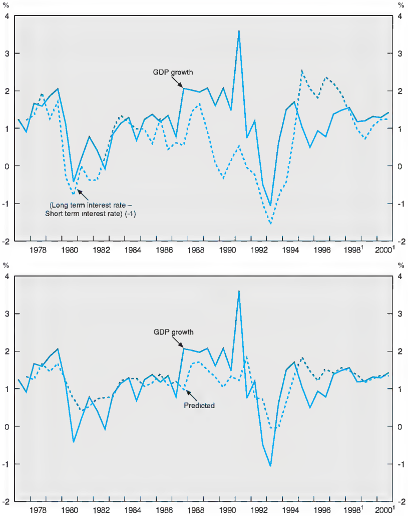
Source: OECD Secretariat.

In summary, Taylor rules can provide a useful supplementary piece of information to help synthesise and structure data concerning monetary policy. They generally work well when shocks are on the demand side, inflation is low (below 10 per cent) and stable and the policy goal is steady. As with any simple rule based on a reduced form relationship, they are vulnerable to policy shifts, such as a different inflation target, or regime shifts, such as the introduction of the euro and are sensitive to the choice of equilibrium real interest rate. Moreover, the stance of monetary policy reflects factors which cannot easily be captured by a Taylor rule. For example, the recent bias towards easing in the United States and to a lesser extent in the EU, in part reflects a response to the global turbulence in financial markets.

Another stylised measure of the stance of monetary policy and indicator of future economic activity, focuses on the relationship between the yield gap and output growth over the following year. The ECB monetary policy strategy explicitly mentions the level of long-term interest rates and the shape of the yield curve as relevant financial indicators. Several empirical studies have found that the predictive power of the yield gap for real output is in many cases superior to that of monetary aggregates or single real or nominal interest rates (Harvey, 1991; Estrella and Hardouvelis, 1991). One possible explanation is that the spread between long and short rates may provide a better measure of the pure liquidity effect of monetary policy (Bernanke and Blinder, 1990). For illustration purposes, an equation relating the growth rate of output to the yield gap lagged one half-year has been estimated for the euro area. The results suggest that an increase of the yield gap of a 100 basis points, if maintained over two quarters, would signal a rise in GDP growth by about a quarter of a percentage point for the subsequent half-year (Figure 8). As with Taylor rules, such a simple measure cannot fully capture all the complexities of the relationship between interest rates and real activity, but by providing information about short-term growth prospects, it may help to assess whether the stance of monetary policy is contractionary, neutral or expansionary. Also, one has to be careful about the interpretation when the movement is dominated by special events. For instance, the flattening of the yield curve observed during most of 1998 reflected essentially the convergence process of long-term rates in the euro area towards German and French rates, as well as "flight to quality" in the wake of the crisis in emerging markets.

Based on a range of indicators, the stance of monetary policy has been fairly relaxed since 1997, reflecting low and falling inflation and the persistence of under-utilised resources, at least in a large part of the area. It is likely that some cyclical slack will still persist in the year 2000 and that inflation will hardly rise. There is, therefore, little need to tighten monetary policy because of incipient inflationary pressures. But ongoing financial turmoil in many emerging markets and slower projected growth in the United States and in the United Kingdom – the two largest trading partners with the euro area – could hit business

Figure 8. **Yield gap and GDP growth in the euro area**



GDP growth = 0.56 + 0.27 x (Long-term interest rate – Short term interest rate) (-1) + 0.36 x GDP growth (-1)
R^2 = 0.26 T: (3.06) (2.46) (2.69)

1. OECD estimates.

Source: OECD Secretariat.

confidence further in the euro area and stall the recovery. Given also that inflation is currently falling, reflecting modest wage growth in most euro area countries as well as temporary factors such as lower world commodity prices and import prices due to the exchange rate appreciation, these factors may provide some further scope to ease the monetary policy interest rate below the current level of 3 per cent.

The monetary policy framework and challenges ahead[12]

The institutional framework[13]

- The governance structure

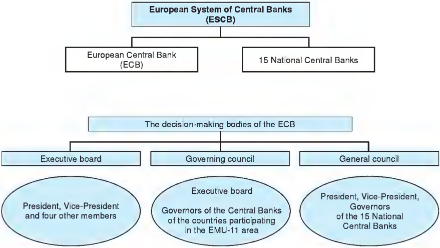
The Maastricht Treaty stipulates that the maintenance of price stability is the primary objective of monetary policy. The definition of price stability and pursuit of intermediate targets is left to the two principal decision-making bodies of the ECB (Figure 9):

- The *Governing Council* is charged with the formulation of the single monetary policy and for setting the guidelines for policy implementation; its responsibilities include decisions relating to intermediate monetary objectives, key interest rates and the supply of reserves in the Eurosystem. Each member of the Governing Council has one vote and monetary policy decisions require only a simple majority. The Governing Council is composed of the governors of the NCBs which fully participate in EMU,[14] and the members of the Executive Board.
- The *Executive Board*, in turn, is composed of the President, the Vice-President and four other members and is mainly responsible for the implementation of monetary policy. In this role it provides instructions to the 11 NCBs.[15]

Implementation of the single monetary policy is carried out by the NCBs. Each central bank participating in EMU has two main tasks: *i)* to contribute to the policy decisions of the Governing Council; and *ii)* to execute these decisions within the borders of its own country. As concerns the implementation of monetary policy decisions, it will be necessary to reconcile the requirement of a common monetary policy with the "subsidiarity" principle, defined in the ESCB Statute,[16] which aims at achieving the highest possible degree of decentralisation at the operational level. The co-ordination of decentralised money market operations, conducted simultaneously at several financial centres in the euro area, as well as differences in the types of eligible counter-parties and collateral, present challenges, made all the more difficult by the process of structural change that is likely to be occurring in various national financial markets.

Another concern is the possibility that regional conditions could have an unwarranted influence on policy. Even in the United States, despite the high

Figure 9. **European Central Bank governing structure**


European System of Central Banks (ESCB)
European Central Bank (ECB)
15 National Central Banks
The decision-making bodies of the ECB
Executive board
Governing council
General council
President, Vice-President and four other members
Executive board
Governors of the Central Banks of the countries participating in the EMU-11 area
President, Vice-President, Governors of the 15 National Central Banks

Source: European Central Bank.

degree of centralisation of decision making, there is some evidence that local conditions have an influence on the votes of regional bank presidents.[17] The Eurosystem is even more vulnerable in this regard. The composition of the Governing Council may carry the risk that heterogeneity of preferences about the output-inflation trade-off could result in undue weight being placed on regional conditions. This, in turn, could make for inefficient choices in ECB policies.[18] The pressures may intensify if the transmission mechanism has differential effects across the area, even after financial markets become more integrated. Such differences in response would entail an uneven distribution of policy effects. In the United States, where financial markets are highly integrated, regions appear to be affected differently by monetary policy actions (Carlino and DeFina, 1995).

- Independence, accountability and transparency

The ECB enjoys a very high degree of formal independence,[19] with the Maastricht Treaty requiring that the central bank be free of political control over setting and implementing policy targets. Instrument independence is supported by the attribution of control over key interest rates, reserve ratios and central bank money. Central bank independence will be stronger than it was in euro area national central banks in the past, and than in the United States, United Kingdom or Canada (Table 14). Central bank independence is likely to reduce problems of time inconsistency and to foster credibility of policy announcements. This in turn should make it more likely that price stability will be achieved and it might make it less expensive, in terms of unemployment, to maintain low inflation.[20]

All OECD central banks are accountable, in the sense that they are "obliged to give a reckoning for one's action", or are "legally or morally obliged to carry out a duty, and to be liable to be blamed for failure" (Briault *et al.*, 1995). The Maastricht Treaty provides for the ECB to be accountable to European institutions,[21] but not to national parliaments. Specifically the ECB will have to present an annual report to the European Parliament, the Council and the Commission. Furthermore, the ECB President, as well as other members of the Executive Board, will appear before the relevant Committees of the European Parliament. However, given the limited political strength of this body and the lack of explicit penalties for any target failures, the arrangement may seem to lack force. On the other hand, the ECB has the option of holding itself accountable directly to the public by setting clear intermediate targets and commenting regularly on key policy developments (Issing, 1992). Indeed, such a communication strategy could be very helpful in winning the necessary broad support over time for the new institution from the European public.

National central banks differ regarding transparency about their objectives and strategy, short-term implementation goals, views of the transmission mechanism and decision-making processes (Table 14). To the extent that transparency reveals private information,[22] it could facilitate the co-ordination of the public's expectations and lower the risk of misinterpretations of policy signals. This could in principle reduce uncertainty about the future course of interest rates provided that the public interprets the information "correctly". Transparency about monetary policy objectives and strategies are common to most central banks. On the other hand, information about the central banks' own views of the transmission mechanism, inflation outlook and reaction function is not widely shared with the public. Only a few central banks publish their own inflation forecasts, such as the Swedish Riksbank and the Bank of England, or lay out publicly something like a contingent action plan. Another controversial issue remains the transparency about the actual decision-making process. Over the past several years, some countries have taken measures to institutionalise the degree of transparency of their central bank with respect to the policy decision process and the implementation and communication strategies. Measures include the formal scheduling and publication of calendars of monetary policy decision meetings, prompt publication of the minutes with detailed transcripts of governing board meetings, including the voting behaviour of individual members and publication of internal forecasts for intermediate or final target variables. In some countries (*e.g.* the United Kingdom, Japan and Sweden), such transparency

Table 14. **Independence and transparency of central banks**

	European Central Bank	United States	Japan	Germany	France	Italy	United Kingdom	Canada
A. Independence of central banks								
Institutional independence (absence of rights of 3rd parties):								
To give instructions	*	*	*	*	*	*	–	–
To approve, suspend, annul or defer decisions	*	*	*	*	*	*	*	*
To vote	*	*	*	*	*	*	*	*
To be consulted ex ante	*	*	*	*	*	*	*	*
Personal independence (of Board members)								
Minimum term of office five years[1]	*	*	*	*	*	*	–	*
No dismissal other than for serious misconduct or unfitness	*	*	*	*	*	*	*	*
Conflicts of interest arising from other functions	*	*	*	*	*	*	*	*
Functional independence								
Price stability as explicit objective	*	*	*	*	*	*	*	*
No ambiguity as to primacy of price stability objective	*	–	–	*	*	*	*	–
Financial independence								
Can avail itself of the appropriate material means	*	*	*	*	*	*	*	*

	European Central Bank	United States before/ after 1994	Japan old/ new	Germany	France	Italy	United Kingdom	Canada
B. Transparency of central banks								
Formal scheduling and publication of calendar of monetary policy decision making process	Y	Y	N/Y	Y	Y	N	Y	N
Interest rate decisions taken at scheduled meetings under normal circumstances	Y	Y	N/Y	Y	Y	N	Y	N
Publication of explanatory press releases at the time of each official interest rate change	Y	N/Y	Y	N	Y	Y	Y	Y
Minutes or summary of meetings of monetary policy decision making body published	N	Y	Y	N	N	N	Y	N
Voting behaviour of individual members published	N	Y	N/Y	N	N	N	Y	N
Regular publication of monetary policy or inflation report	Y	Y	Y	Y	Y	Y	Y	Y
Publication of internal forecasts for intermediate or final target variables	N	N	N	N	N	N	Y	N
Reporting to/monitoring by the Parliament	Y	Y	Y	N	Y	Y	Y	Y

Note: * = Aspects enhancing independence are present; – = Aspects enhancing independence are not present; Y = Yes; N = No.

1. In the United Kingdom, the Governor and Deputy Governor are appointed for 5 years. The other members have 3 year terms.

Source: OECD Secretariat.

measures were introduced in the context of wider reforms that gave the central bank more independence, in an effort to enhance the credibility of monetary policy.

The statutes of the ECB contain few provisions regarding transparency, giving the Governing Council a fair amount of latitude with respect to the degree of transparency it wishes to adopt. In any case, it is not obvious that the ECB would necessarily accrue additional credibility gains, were it to adopt formal transparency arrangements. Unlike other central banks, the ECB is a newly established entity and will be under the intense scrutiny of the financial markets who will try to understand the ECB's views on the economy and how policy is implemented. To reduce the risks of misinterpretation and loss of credibility, the ECB has made commitments to inform the public on these issues. For instance, the Governing Council has stated that it will "inform the public regularly and in detail about its assessment of the monetary, economic and financial situation in the euro area and the reasoning behind its policy decisions" (Press release, 13 October 1998). To do so, the ECB publishes its research, issues a monthly and quarterly bulletin focusing on economic developments in the euro area and executive board members deliver speeches to communicate to the public and markets both their view on the economy and the policy strategy. The decision not to publish the minutes of Council meetings may partly reflect the view that transparency about the debate and voting behaviour of representatives from different political and national backgrounds may well make it more difficult for members to change their views, take a euro-wide perspective, or have a frank discussion.[23] Only if there were strong general European public opinion against members taking a narrow national view would this type of transparency be beneficial. On the other hand, Buiter (1998) has argued that secrecy may help euro country partisans to pursue their own national interest without being seen as doing so by a wider public.

- Prudential supervision and lender of last resort function

The ECB is not entrusted with any general responsibility related to prudential supervision of credit institutions and the stability of the financial system which lie with the competent national authorities (including, in most European countries, the NCBs). The separation of the two functions of monetary policy management and banking supervision implies a high degree of independence of monetary policy from the stability needs of the financial sector. Although no explicit reference is made in the Treaty to the role of the ESCB as a lender of last resort, responsibility is given to the ESCB in promoting the smooth operation of payment systems [Treaty, Article 105(2)], including the provision of financing facilities to credit institutions (Statute Article 18), giving it the role of lender of last resort as far as the provision of short-term liquidity through the marginal lending facility is concerned.

For interventions going beyond the provision of short-term liquidity, other competent national institutions are responsible. In the medium term, with greater financial integration, bank solvency problems in one country could more easily have implications for the stability of the financial system beyond national borders, increasing the importance of co-ordination, both among national supervisory authorities and between them and the Eurosystem. Close contacts already exist among international supervisors from national central banks through the EU Banking Supervision Committee and supervisory institutions, likewise, maintain a network of contact through regular meetings at international organisations. Similarly, regulators will have to rely increasingly on information from their counterparts in order to understand market developments and the evaluation of risks facing the financial system will have to adopt a Europe wide perspective. For instance, there is a need to achieve harmonisation of accounting standards and a European wide company law would facilitate regulatory oversight, as well as the full implementation of the Single Market programme. Whatever structure is decided upon, there will have to be sufficient flexibility to react swiftly to events.

Objectives and strategy

The Maastricht Treaty states that the ECB is to maintain price stability and to support general macroeconomic policy "without prejudice to the objective of price stability". Price stability was defined in October 1998 as a year-on-year increase in the Harmonised Index of Consumer Prices (HICP) for the euro area of below 2 per cent. Deflation is not considered consistent with the price stability objective. At the same time, it was emphasised that price stability is a medium-term objective, rather than a short-term one, and that monetary policy would be guided solely with a euro area-wide perspective.[24] In late 1998, the Governing Council of the ECB agreed on two of the remaining key details of its monetary policy strategy. These were a quantitative reference value for monetary growth and the definition of the monetary aggregate. The Governing Council decided to set the reference value for M3[25] at 4.5 per cent per annum.[26] This takes into account the ECB interpretation of price stability, trend growth of real GDP in the euro area, estimated to be in the range of 2-2.5 per cent per annum and a trend decline in the velocity of circulation of between 0.5 and 1 per cent each year. The strategy adopted by the ECB reflects the preparatory work at the EMI which suggested an approach based on an overall appraisal of the information coming from both inflation and monetary aggregates to help stabilise longer term inflation expectations and to provide an analytical tool to monitor and communicate monetary developments (EMI, 1997*a* and *b*; Duisenberg, 1998).[27]

The ECB has assigned money a prominent role, but has not chosen a pure monetary targeting approach. Nonetheless, many of the considerations relevant for assessing monetary aggregate targeting are similar for evaluating a quantitative reference value. A possible advantage of setting a reference value for monetary growth is that the ECB, which initially will not have its own inflation track record, may be able to appropriate some part of the Bundesbank's credibility, although the effect is likely to be only transitory and by no means a substitute for establishing its own track record. As well, the strategy does have an empirical basis which is easy to communicate – over longer time periods, broad trends in money growth, beyond that required to meet transaction needs, are eventually reflected in higher trend inflation rates. These correlations are not as tight over shorter time periods which are likely to be more relevant to policy makers, and the ECB has made it clear that it will not correct deviations from the reference value mechanically. An area of uncertainty is whether the euro will gain in importance as an international reserve currency relative to existing euro area national currencies. This could make it more difficult to interpret fluctuations in money aggregates, since not only will they reflect changes in transactions demand and the opportunity cost of holding euros, but also changes in the composition of international investment portfolios.

In making its choice about which aggregate to use, one of the key considerations the ECB had to take into account was its possible instability in relation to nominal variables. Related to this is the need to balance the desire to have a controllable aggregate against the need to have one that takes account of possible substitution effects associated with financial innovation. The former consideration would suggest a relatively narrow definition, the latter a broader one. Given that considerable financial innovation is expected over the next few years in the EMU area, a relatively broad aggregate has a better chance of preserving a stable relationship to nominal output. Additional requirements of any aggregate are that it be reasonably easy to define and not subject to frequent changes. Using an aggregate without these qualities risks damaging the ECB's credibility. The ECB has agreed upon a unified euro area wide reporting scheme for all financial institutions which create money-like instruments, which will take into account cross-border holdings. Harmonised monetary aggregates based on these data are being compiled by the ECB and historical series are published on it's Web site (*http://www.ecb.int*).

Even a broad monetary aggregate could be subject to enough instability to reduce its usefulness. Accordingly, an explicit inflation forecast targeting strategy may have some attraction. Efficient monetary policy should be forward looking and use all relevant information to assess cost pressures. This would, *de facto*, allow some weight to be given to a broad range of economic variables, including output fluctuations which impact on future price developments. Such an approach is also consistent with theoretical research and actually reflects the implementation of policy in practice. The Bundesbank, which has consistently employed a money aggregates strategy, has in practice followed a policy of "pragmatic monetarism", missing its targets in about half the cases since 1974 (Table 15). Such misses have "only rarely been of a completely involuntary nature" and the

Table 15. **Bundesbank's monetary targets and their implementation**

Per cent

	Target[1]	Actual (rounded values)	Target achieved
1975	8	10	No
1976	8	9	No
1977	8	9	No
1978	8	11	No
1979	6-9	6	Yes
1980	5-8	5	Yes
1981	4-7	4	Yes
1982	4-7	6	Yes
1983	4-7	7	Yes
1984	4-6	5	Yes
1985	3-5	5	Yes
1986	3.5-5.5	8	No
1987	3-6	8	No
1988	3-6	7	No
1989	5.0[2]	5	Yes
1990	4-6	6	Yes
1991	3-5[3]	5	Yes
1992	3.5-5.5	9	No
1993	4.5-6.5	7	No
1994	4-6	6	Yes
1995	4-6	2	No
1996	4-7	8	No
1997	3.5-6.5[4]	5	Yes
1998	3-6	6	Yes

1. Growth of central bank money stock until 1987; growth of money stock M3 since 1988. The growth rates are calculated between the fourth quarter of the previous year and the fourth quarter of the current year; 1975: December 1974 to December 1975; 1976-78: as an annual average.
2. Approximate target value.
3. Target 1991 adjusted in July 1991 from 4-6 to 3-5 per cent.
4. In December 1996 a two-year targeting approach was adopted, envisaging an expansion of the money stock M3 at an annual rate of approximately 5 per cent in the course of 1997 and 1998. Additionally, target corridors were set for 1997 and 1998 as indicated above.

Source: Issing (1997), Deutsche Bundesbank (1995), and Deutsche Bundesbank press releases.

Bundesbank has taken pains to explain both the reasons why the targets were missed and the implications for policy (Issing, 1997).[28] This implies a focus on the underlying determinants of the changes in the target variable as well as a need to monitor other indicators. The general conclusion from the economic literature on monetary strategies is that responding to the determinants of target variables leads to more efficient outcomes (Svensson, 1998). The ECB has, indeed, announced that in parallel with the analysis of monetary growth, it will undertake a broadly-based assessment of the outlook for price developments and the risks to price stability. The assessment will be based on a wide range of economic and financial variables as indicators of future price developments. Pursuing a clear monetary strategy will be a challenge as the various indicators could provide conflicting signals and area-wide relationships are currently under-researched due to the absence of a comprehensive area-wide database.

Understanding the transmission mechanism

Whatever strategy has been chosen, understanding how the euro area will be affected by interest rates will be critical to the successful implementation of policy. The monetary policy transmission mechanism is shaped by a host of factors. Among those that are relevant to the ECB are: the allocation of credit by banks and the financing structure of enterprises; levels and composition of household wealth; the degree of openness to international trade; differences in the composition of output; and differences in the flexibility and institutional features of labour and product markets. For the ECB, two issues are of immediate importance: how the transmission mechanism will function at the start of monetary union; and how it is likely to evolve in the near term.

Although there seem to be differences in the existing monetary transmission mechanism across European countries,[29] the empirical evidence does not provide clear guidelines for policy. A synthesis of a number of the findings is given in Table 16 which presents estimated GDP changes from baseline, five to eight quarters after a change in short-term interest rates. Some of the studies suggest a relatively similar response for the area. But even those studies which identify an uneven response do not agree on one single country as being more sensitive to interest rate changes and a large number of the cross-country differences reported appear to be statistically insignificant (Kieler and Saarenheimo, 1998).

While such evaluations are helpful, it is also likely that the response of the euro area economy will change with the launch of the euro. One area likely to come under increasing competitive pressure is the financial sector and how it allocates credit.[30] The extent of this pressure will depend on current structures across countries and the opportunities for arbitrage. For example, countries with particularly large household wealth levels, or where firms rely more heavily on equity compared with loans, are in a position to avoid credit rationing ("the credit channel")[31] but will experience wealth changes. Increasing competition between financial institutions in the euro area will give households and enterprises a larger choice of financial instruments and more freedom in the allocation of consumption over their life cycles. Both of these factors will place more emphasis on interest rates and less on credit availability. However, while a more integrated financial market may narrow differences in the transmission mechanism, it is unlikely to eliminate them. How quickly these differences are reduced will depend on the speed of financial market integration. As well, national differences

Table 16. **Empirical assessments of the impact of monetary policy on output in various European countries**[1]

Impact on real GDP 5 to 8 quarters after original shock, percentage deviation from baseline

Study	Shock	D	F	I	UK	E	NL	Ranking (D, F, I, UK)	Comments
Single country Macro Models									
National Central Bank models [BIS (1995)]	Type 1	–0.4	–0.4	–0.4	–0.9	0.0	–0.2	D = F = I (< UK)	Fixed ERM rates for D, F and I; endogenous exchange rate for UK.
Multi-country Macro Models									
Fed MCM model [BIS (1995)]	Type 1	–0.7	–0.7	–0.3	–1.2	..	..	I < D = F < UK	Endogenous exchange rates
IMF Multimod	Type 2	–0.5	..	..	–0.5	..	..	D = UK	Endogenous exchange rates
Quest II (European Commission)	Type 2	–0.4	–0.4	–0.3	–0.4	–0.4	–0.3	I < D = F = UK	Endogenous exchange rates
Taylor (1995)	Type 2	–0.4	–0.4	–0.4	–0.1	..	..	UK < I < D = F	Endogenous exchange rates
Small structural models									
Britton and Whitley (1997)	Type 1	–0.5	–0.5	..	–0.3	..	..	UK < D = F	Each country estimated separately
Britton and Whitley (1997)	Type 1	–0.4	–0.4	..	–0.4	..	..	D = F = UK	All countries estimated jointly
Reduced form equation									
Dornbusch, Favero and Giavazzi (1998)	Type 3	–0.5	–0.5	–1.1	–0.5	–0.4	..	UK = D = F < I	Effect after 8-12 months
Dornbusch, Favero and Giavazzi (1998)	Type 3	–1.4	–1.5	–2.1	–0.9	–1.5	..	UK < D = F < I	Effect after 2 years
Structural VARs									
Ramaswamy and Sloek (1997)	Type 4	–0.6	–0.4	–0.5	–0.5	–0.3	–0.6	F < I = UK < D	Baseline model
Barran, Coudert and Mojon (1996)	Type 4	–0.6	–0.4	–0.3	–0.4	–0.4	–0.3	I < F = UK < D	Baseline model (model 1)
Gerlach and Smets (1995)	Type 4	–0.3	–0.2	–0.2	–0.6	..	..	F = I < D < UK	1 standard deviation shock
Gerlach and Smets (1995)	Type 1	–1.0	–0.5	–0.5	–0.7	..	..	F = I < UK < D	1% interest rate hike for 2 years

Note: Types of monetary shock: Type 1: 1 per cent point rise in short-term interest rates sustained for at least two years; Type 2: 1 per cent permanent decrease in money target; Type 3: 1 per cent simultaneous permanent increase in short-term interest rates; Type 4: 1 standard deviation interest rate shock which in many cases is close to one percentage point.

1. D: Germany; F: France; I: Italy; UK: United Kingdom; E: Spain; NL: Netherlands.

Source: Kieler, M. and T. Saarenheimo (1998).

Table 17. **Financial position of the private sector in selected euro area countries**

1996, as per cent of GDP

	Germany[1]	France	Italy	Spain[2]	Belgium
Non-financial enterprises					
Net assets	–35	–73	–67	–43	–83
Gross assets	70	249	39	80	125
of which:					
Short-term[3]	21	24	9	39	30
Long-term[4]	9	4	4	19	24
Equity	23	176	20	16	71
Gross liabilities[5]	105	322	106	123	208
of which:					
Short-term loans	21	16	25	n.a.	26
Long-term loans[6]	45	42	17	n.a.	51
Households					
Net assets	124	138	163	78	217
Gross assets	134	186	187	139	257
of which:					
Short-term[3]	59	21	44	73	77
Long-term[7]	54	41	60	7	78
Equity[8]	17	71	36	40	102
Gross liabilities	11	49	24	61	40
of which:					
Short-term loans	2	8	7	n.a.	4
Long-term loans	8	32	12	n.a.	36

1. Figures relate to 1995.
2. Data for long *versus* short loans not available. It is assumed that half of total loans on the asset side are short and the other half long.
3. Cash, short-term deposits and short-term loans and securities.
4. Bonds and long-term loans.
5. Including own shares.
6. Including, in some cases, corporate bonds.
7. Bonds and net equity of life insurance reserves and pension funds.
8. Including shares of mutual funds.

Source: *Financial Accounts of OECD Countries.*

in household wealth, equity ownership and housing tenure choice are likely to continue to be of importance across the euro-area. As for private sector balance sheets, the net assets of both households and enterprises (measured relative to overall GDP) are not that different across countries, in contrast to the composition of gross assets and liabilities which varies significantly (Table 17). If recent US evidence can be used as a guideline, the possible outcome could be that there will not be significant differences among the larger economies of the euro area. Within the United States it appears that certain areas do indeed deviate, but these differences are small (Carlino and DeFina, 1995).

The exchange rate will also be an important part of the transmission mechanism. Because the euro is a new currency, understanding the host of forces that affect its level in international markets will be difficult. Those factors that are likely to be important are: the relative cyclical position; market views on current and prospective inflation and interest rate developments; fundamental determinants of euro area savings and investment as well as productivity trends; and the potential use of the euro as an international currency. The exposure of the area to trade will not be much different from that of the United States or Japan, but individual countries within the area will be differently affected by exchange rate developments. Despite the euro area's relative closedness, external demand could continue to be a relatively important source of growth if exchange rate crowding-in and out remains significant.

Over the past decade, inflation expectations have played an important role in helping to bring down inflation and to contain it, once reduced (BIS, 1996; Brayton *et al.*, 1997; Pigott and Christiansen, 1998; and Visco, 1995). For example, increases in official interest rates in Italy in recent years have been found to lower expectations of inflation very rapidly and significantly (Buttiglione *et al.*, 1997). In addition, there is some evidence that longer-term expectations as well as the dispersion of these expectations have also declined. Links of this sort can help to reinforce monetary policy actions to contain inflation pressures, for example, by altering the behaviour underlying wage and price strategies. Certainly the current environment of low inflation that will exist in the euro area when the ECB begins operation (and its maintenance) as well as a number of aspects guaranteeing the independence of the central bank will be beneficial. But to realise the full benefits, other factors will have to play a role. In particular, the progress on fiscal consolidation as well as further efforts at labour and product market reform, both of which appear to have stalled in some countries, will need to be continued.

Fiscal policy: complying with the Stability and Growth Pact

Fiscal relations within the EU differ considerably from those in fully-fledged federations. The Community's budget is very small relative to that of the member States, as the Community does not provide core public services, such as defence and education. It is also not large and flexible enough to enable the Community to pursue macroeconomic stabilisation objectives. However, co-ordination of fiscal policy has been strengthened considerably since the early 1990s, as the Maastricht Treaty set deficit and debt criteria to be respected before a country could join the euro area, and the Stability and Growth Pact made these more stringent. The institutional side of co-ordination has also been enhanced with the Broad Economic Policy Guidelines and the excessive deficit procedure. The following sections review fiscal consolidation efforts over recent years in international comparison, the current fiscal stance for the euro area as a whole and conclude with a discussion of the medium-term fiscal policy issues raised by EMU.

Budgetary developments and the fiscal stance

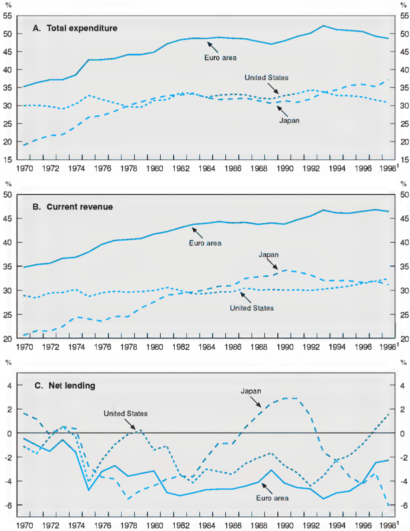
At close to 1.3 per cent of EU-wide GDP, spending by the Community is very small. Even in the most decentralised federations, central government spending (excluding interest payments) is higher than 10 per cent of GDP. On the other hand, government revenues and spending of EU member countries are high by international comparison. Currently, euro-area government spending as a per cent of GDP is close to 50 per cent, as compared to around 35 per cent in both the United States and Japan (Figure 10), reflecting considerably higher expenditure on social security and interest payments, but also larger outlays on government consumption and subsidies. In comparison with the United States, differences were much smaller 30 years ago, but both expenditure and revenue ratios have drifted up, contrary to US experience where they remained largely stable.

In addition, over the last three decades fiscal policy in the euro area has followed unsustainable trends, as expenditure ratios drifted up faster than revenue ratios.[32] Unsustainability was initially masked by the good starting position – the government account was in small surplus throughout most of the 1960s and close to balance in the early 1970s – but the deficit/GDP ratio ratcheted up from cycle to cycle until the early 1980s. Since then the debt/GDP ratio has risen sharply. At the cyclical peak in the late 1980s, the deficit was still sizeable at 2½ per cent of GDP and rose to a record 5½ per cent at the trough of the recession in 1993. In the pre-qualifying period for EMU (Stage 2), EU countries faced a strong incentive for cutting budget deficits in the form of the Maastricht convergence criteria for membership, and progress in consolidating budgets was made. However, progress was uneven across countries and at close to 2 per cent of euro area GDP in 1998, deficits are still rather close to the Maastricht Treaty deficit ceiling, especially in the large euro area member countries, and debt dynamics has only started to turn around in 1997. A partial explanation for the slow turnaround in debt dynamics was low growth throughout the period of consolidation. Budget consolidation proceeded more swiftly in the United States reflecting stronger growth.

Table 18 shows that budget consolidation efforts since the deficit peaked in 1993 have been based mainly on restraint on spending on goods and services. Spending on social transfer programmes was also subdued, partly due to cyclical factors. At the same time interest payments fell, especially in highly indebted countries. Contrary to conventional wisdom, revenues did not contribute to budget consolidation in the euro area from 1993 onward[33] while they did contribute significantly in the United States. Overall, the stance of fiscal policy, judged

Figure 10. **Government expenditure, revenue and net lending**

Per cent of GDP



1. OECD estimates.

Source: OECD Secretariat.

Table 18. **Budget consolidation in the euro area in the 1990s**

Per cent of GDP

	Change in ratios		Level, 1998	
	Euro area 1993-98	United States 1992-98	Euro area	United States
Current revenue	–0.3	2.5	46.4	32.4
Direct taxes	0.1	3.0	12.5	15.7
Indirect taxes	0.8	–0.4	13.6	7.7
Social security contributions	–0.8	–0.1	17.1	9.0
Other	–0.4	0.0	3.2	0.0
Current expenditure	–2.7	–3.2	46.2	29.9
Consumption	–1.1	–2.1	17.6	14.7
Interest payments	–0.9	–0.6	4.8	1.5
Subsidies	–0.3	–0.2	1.8	0.3
Social and other transfers	–0.4	–0.3	22.1	13.4
Net saving	2.4	5.6	0.2	2.5
Net capital spending	–0.8	–0.3	2.4	1.0
Net lending	3.2	6.0	–2.3	1.6

Source: OECD Secretariat.

by the change in the cyclically-adjusted primary balance, already became restrictive in the euro area in 1991; two years before the trough of the cycle. Since 1991, fiscal policy was mildly restrictive, except for 1997, when a major budget consolidation effort was made to achieve the 3 per cent limit (Table 19). Over longer

Table 19. **Euro area fiscal indicators**

Per cent of GDP

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Financial balances									
Net lending	–4.6	–5.5	–5.0	–4.8	–4.1	–2.5	–2.3	–1.9	–1.6
Net primary balance	0.2	–0.5	–0.2	0.2	0.8	2.2	2.0	2.2	2.3
Structural balance	–5.1	–4.4	–4.2	–4.1	–3.1	–1.6	–1.6	–1.3	–1.1
Primary structural balance	–0.3	0.4	0.5	0.8	1.7	3.0	2.6	2.8	2.8
Gross saving	–1.6	–2.2	–2.0	–1.9	–1.6	–0.4	0.2	0.6	0.9
Government debt	61.9	67.2	69.5	72.8	75.4	75.2	73.9	73.1	72.1
Spending and revenue									
Total expenditure	50.1	52.2	51.1	50.9	50.6	49.3	48.7	48.3	47.8
Total revenue	45.4	46.7	46.1	46.0	46.4	46.8	46.4	46.3	46.2

Source: OECD Secretariat.

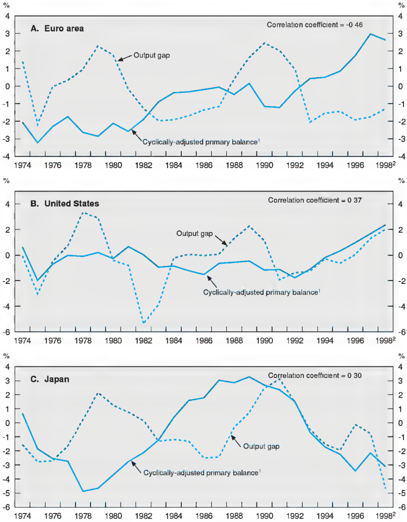
periods, discretionary fiscal policy in the euro area appears to have been mildly pro-cyclical, with budget consolidation efforts abandoned early on in a cycle, while consolidation efforts often started before the trough was reached (Figure 11). This contrasts with the experience of the United States which often managed to smooth the cycle, rather than to amplify it.

It is clear that many countries in the euro area will need to make considerably more progress in pruning deficits in order to respect the Maastricht deficit limit in adverse economic conditions, and to cope with additional outlays due to the ageing of the population (see also below). Tax competition is already eroding some revenues and it is widely agreed that non-wage labour costs to finance social security systems should fall to boost job opportunities for the low-skilled. It will, therefore, be crucial to restrain transfer spending which has been the major force behind the trend increase in primary spending in the euro area over the past two decades. Subsidies while falling slowly are still considerably above the levels in the United States and Japan, not least due to ample agricultural support. Concerning transfers to households in the euro area, they are considerably above the levels observed in the United States and Japan (Figure 12). The data shown in Figure 12 are on a gross basis, which is the most widely available measure. While international differences shrink if transfers are calculated net of taxes, differences across countries remain significant (Adema, 1997).

Over the medium term (1980 to 1995), spending pressures concerning transfers to households are clearly evident in the euro area, but also elsewhere. Overall, the euro area not only started at a higher level of spending, but also the increase (5 per cent of GDP) was double that in the non-euro OECD area. Also the composition of spending increases differed considerably. In the euro area, unemployment-related public spending grew strongest and outlays on pensions advanced considerably faster than elsewhere. On the other hand, health spending was better contained in the euro area. The data suggest that while reducing unemployment in the euro area could provide a large fiscal dividend, the OECD's work on ageing populations demonstrates that the current policy setting is clearly unsustainable in the long term. Concerning spending on health and pensions, OECD country surveys document a considerable reform effort in many European countries over recent years, which was fairly successful in reining in transfer outlays: in real terms, the increase in social security spending fell below trend GDP growth over the period 1993-98 and was just half its trend rate. It was also far below spending growth in the United States and Japan.[34] A major difference with the other two countries is that revenue growth was also much lower. This suggests, that to ensure fiscal sustainability in the long run, a vigorous reform process will have to be sustained, while better medium-term growth would help in limiting cuts to the European welfare system.

Figure 11. **Fiscal stance and output gaps**

Per cent of GDP

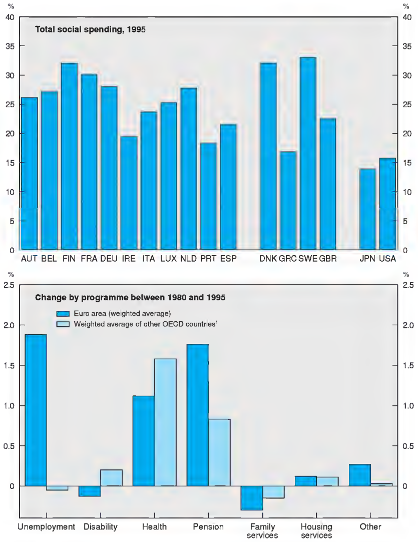


1. As a per cent of potential GDP.
2. OECD estimates.

Source: OECD Secretariat.

Figure 12. **Social spending trends**

Per cent of GDP



1. Excluding the Czech Republic, Hungary, Iceland, Korea, Mexico and Poland.
Source: OECD Secretariat.

New medium-term policy issues

EMU raises entirely novel issues because a major currency union has been formed in the absence of fiscal or political union. Monetary and exchange rate policies are no longer made at the national level, while the Stability and Growth Pact will constrain budgetary behaviour. At the same time, subsidiarity – a presumption in favour of national sovereignty – remains the guiding principle in matters of fiscal policy, except for the constraints of the Pact and some constraints on levying indirect taxes. The major issues addressed below concern: *i)* macroeconomic issues relating to fiscal consolidation; *ii)* the tension between subsidiarity and the potential desirability of centralising more budgetary responsibility at the EU level; *iii)* issues relating to policy co-ordination across countries; and *iv)* tax competition.

Fiscal policy rules: the Stability and Growth Pact

While significant progress has been made in pruning budget deficits, incentives to behave prudently could weaken once countries have joined monetary union as there is no counterpart mechanism for expelling members for fiscal misbehaviour. If monetary discipline is perceived to be vulnerable, financial markets may not impose as high a country-specific risk premium and in the event of fiscal profligacy some of the costs of deficit finance could shift to neighbouring countries and create euro area-wide exchange rate and interest rate pressures due to a higher euro area risk of default.[35] Put differently, unsustainable budget policies by a member country could eventually lead to a request for monetary accommodation by the European Central Bank in circumstances where refusal could lead to default. Because monetary union partners could all stand to lose from an individual member's default, all the options in such a situation would be undesirable.

The Stability and Growth Pact (Box 4) is designed both to limit the extent to which budgetary developments in individual countries impinge on their neighbours, particularly *via* their effects on interest rates, and to make future bail-out requests unlikely. Elaborating on the Maastricht Treaty's fiscal rules, the Pact sets a 3 per cent of GDP limit on budget deficits, though with an escape clause for modest temporary overshoots due to exceptional circumstances such as a severe recession. It compels governments *i)* to bring budgets back toward sustainable trend positions, and *ii)* to adopt a symmetrical approach to deficit financing over the cycle. The Pact is underpinned by the "excessive deficit procedure" – which has been in force since the start of stage 2 of EMU in January 1994 – involving surveillance and possible penalties.

Identifying appropriate deficit and debt targets poses problems because the optimality of any numerical deficit or debt/GDP ratio across countries and over time cannot be demonstrated theoretically, not to mention empirically. But

Box 4. The Stability and Growth Pact

The Stability and Growth Pact clarifies the Maastricht Treaty's provision for dealing with "excessive deficits" and provides an institutional framework for its enforcement, in part through strengthened surveillance and co-ordination of economic policies *via* the annual review of national stability programmes. The Pact also calls on participants in the Economic and Monetary Union (EMU) and those countries with a derogation from initial participation in stage 3 of EMU – the actual introduction of a single monetary policy – to adopt budgetary balance (or even a surplus) as the medium-term objective.

The Pact considers a general government deficit above 3 per cent as excessive unless the European Union judges it to be temporary and there are special circumstances. Temporariness implies that, according to the projections of the Commission, the deficit would fall beneath the 3 per cent threshold in the following year. In the case of an excessive deficit, the Council will, on the recommendation of the Commission, propose a course of action for the country which should be followed by effective measures within four months. The Council will monitor the measures and if they are found to be inappropriate it will make further more detailed proposals, which will be published. If corrective measures have not been implemented within ten months, sanctions will be imposed.* These would initially take the form of non-remunerated deposits, with a fixed component equal to 0.2 per cent of GDP and a variable component rising in line with the size of the excessive deficit. Such deposits are limited to a maximum of 0.5 per cent of GDP per year, but would accumulate each year until the excessive deficit is eliminated. Provided the excessive deficit is corrected within two years the deposits are returned to the country, otherwise the deposits will become non-refundable. In the event that the measures taken by a country are ineffective, the whole process will be restarted, but sanctions will be imposed within three months.

When a country is judged to be in recession, which is defined as an annual fall in real output (GDP) of at least 0.75 per cent, the Pact will be enforced in a differentiated manner. If economic output in a member country declines by 2 per cent or more – and provided the deficit is temporary – exemption from the procedure is granted automatically. In the event GDP falls by between 0.75 per cent and 2 per cent, exemption can be granted in special circumstances by the Council. The country would need to convince the Council that the economic decline was "exceptional" in terms of its abruptness or in relation to past experience.

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* Sanctions do not apply to those countries with an opt-out or derogation from participation in stage 3 of EMU.

without widely accepted reference values, it would have been impossible to monitor budgetary discipline effectively. The procedure has worked very well overall, as it induced countries to reduce deficits, and in some cases by a considerable amount. In 1998, all euro area countries had fiscal positions below the reference level. Fiscal consolidation before the launch of the euro was important for several reasons: *i)* fiscal discipline is essential for establishing an appropriate policy mix and for avoiding an overburdening of monetary policy at the beginning of the single currency era; *ii)* the entry of countries with little fiscal policy credibility could have led to an area-wide risk premium; and *iii)* uncoordinated policies could have induced exchange-market turbulence prior to the launch of the euro.

During monetary union a major concern is to safeguard monetary policy credibility and financial market stability in the event of unsound fiscal policies. While the Maastricht Treaty and later provisions have taken a very prudent approach on this matter,[36] the fiscal rules provide an additional safety belt. In addition, with the Stability and Growth Pact, EU member countries have agreed to move to fiscal balance to restore room for policy manoeuvre, and countries facing adverse demographics will aim at a surplus. The underlying goals of the Stability and Growth Pact are broadly in line with the recommendations included in the OECD's country surveys. However, some countries still have to go through a transitional phase to achieve these goals.

At least two arguments have been advanced, which call into question the need for fiscal rules as stipulated in the Stability and Growth Pact. First, the rules do not address the issue of high and distortive tax burdens and generous social benefits in Europe which constitute a poor foundation for coping with the fiscal implications of population ageing. The constant threat of deficit sanctions could perpetuate this behaviour, even retarding reforms where these might push up deficits in the short run (Eichengreen and Wyplosz, 1998). Secondly, market discipline could increase with monetary union, making rules unnecessary (von Hagen and Eichengreen, 1996). With the loss of monetary sovereignty and the freedom to levy seignorage and inflation taxes, the risk of default could increase and lead markets to set higher, and more differentiated, sovereign risk premia for EMU members. Also, a better integrated capital market may become more sensitive to unsustainable debt build-ups than were formerly captive (segmented) national markets for government debt. For example, risk premia of Canadian Provinces' bonds are high for relatively low debt ratios and much higher than sovereign risk premia for EU countries prior to EMU. Likewise, strong market discipline exists on State budgets in the United States,[37] and many States reinforce it by stringent budget rules which have kept debt ratios low. On the other hand, these are federations where sub-central governments only "own" part of their revenue base, while the central governments provides significant intergovernmental transfers, whereas this only exists in the EU to a very limited extent. Therefore, default risk is likely to be currently much lower in EMU than in existing federations.

The adequacy of the rules has likewise been challenged. Rules could increase the incentive to classify more spending as off-budget, deflecting energies from genuine consolidation. Empirical evidence from the United States suggests that States with the most stringent budget rules also displayed the largest increases in off-budget forms of spending over time, while the Gramm-Rudman balanced budget rule gave rise to creative accounting at the federal level.[38] In the European Union itself, reclassification of expenditures and one-off measures also contributed in many countries to compliance with the Maastricht deficit convergence criteria in 1997. To prevent such practices from proliferating, accounting rules, currently scrutinised by EUROSTAT may need to be strengthened further. In addition, in the absence of an overall fiscal framework, rules only provide an incentive to achieve the minimum and no incentive to do better. Countries which have recently introduced fiscal "transparency" obligations (*e.g.* New Zealand, Australia and the United Kingdom) have noted that such frameworks provide a useful complement to fiscal rules and place them in a more holistic context.

Undoubtedly the most common criticism of the Stability and Growth Pact rules is that, by focusing on actual rather than structural deficits, they could tie the hands of government with regard to fiscal stabilisation policy. Not only do they operate to limit the scope for discretionary fiscal expansion during a slowdown, they could also require deliberate contraction, which would even prevent automatic stabilisers from operating. This implies two sorts of risk: *i)* that the rules are obeyed, but at significant cost in foregone tax smoothing and output growth; or *ii)* the force of the rules is weakened as sanctions for violations become politicised in interpretation and application.[39] Elimination of these risks would require that structural deficits fall below the 3 per cent upper limit by a wide enough safety margin. In view of this consideration, the Stability and Growth Pact states that a "close-to-balance" or surplus budgetary stance in the medium-term would be required in order to provide sufficient scope for flexibility over the cycle. However, the current set-up does not provide incentives to be prudent in good times.

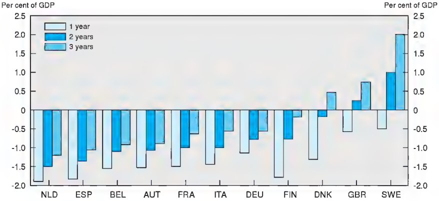
Setting medium term fiscal targets

The following examines various approaches to setting fiscal targets in the context of the Stability and Growth Pact, and generally corroborates this "close-to-balance" norm. However, such targets, which are based on the extrapolation of past behaviour, could be subject to greater than usual margins of uncertainty with the "regime change" of EMU. With a common currency and monetary policy, one major source of potential divergence of economic activity is lowered, but equally a single monetary policy based on conditions in the euro area, may result in more divergent fiscal policies and different impacts, because of diverse labour market structures and exposure to extra-euro trade shocks. These forces may result in less inflation divergence and greater regional output volatility after the euro is launched (see below). Hence, countries may well need to be more ambitious. In any event, during the critical transition period, between the start of EMU and such time as these medium-term targets are attained, the large euro area countries remain especially vulnerable to these risks.

How big a fiscal cushion is necessary to comply with the Pact's 3 per cent upper deficit limit in the event of recession? The OECD Secretariat has approached this empirical problem in two ways. The first looks at the maximum negative output gap observed in the past for each country, and on the basis of the average cyclical sensitivity of that country's budget,[40] derives the maximum distance that would be needed from the 3 per cent of GDP upper limit in order to be able to accommodate such a shock in the future. The first approach suggests that deficit targets of around 1½ per cent would be sufficient in euro area countries to remain below the 3 per cent ceiling in non-severe recessions. The second approach estimates a structural VAR model to capture the effects from economic shocks that have prevailed in the past in each EU country.[41] Based on the estimated distribution of these shocks, stochastic simulations are performed to build up probabilities of breaching the 3 per cent ceiling in the future.[42] Under this methodology, budget targets become more stringent as longer-term horizons are considered, because the probability of a sequence of unfavourable events hitting an economy increases over time. For instance, the simulation results suggest that, for the majority of countries, if governments were to aim for a cyclically-adjusted deficit between 1 and 1½ per cent of GDP, the actual deficit would, with a 95 per cent likelihood, remain within the 3 per cent limit over a two year horizon without the need to adjust fiscal policy in a pro-cyclical fashion (Figure 13). This horizon would be extended to at least three years if governments opted for a "close-to-balance" budget rule, defined as a cyclically-adjusted deficit between zero and 1 per cent of GDP. However, for Denmark, the United Kingdom and Sweden (in ascending order), moderate (cyclically-adjusted) surpluses would be needed to minimise the risks of breaching the 3 per cent limit over a three year horizon.[43]

Work by the European Commission (Buti *et al.*, 1997) corroborates the close-to-balance rule by running a retrospective application of the excessive deficits procedure to EU countries. It finds that if budgets follow similar response patterns to those in the past and starting from a hypothetical position of balance, even severe recessions would not cause violation of the 3 per cent upper deficit limit, apart from the allowed small temporary overshoots. On the other hand, a starting position of a 2 per cent deficit (the current EU average) would imply widespread violations based on past behaviour and would not permit a waiver of sanctions even in the case of severe recession. A second study (Buti *et al.*, 1998), using a methodology similar to the first OECD approach described above, but based on the Commission's macroeconomic model, finds that a structural deficit of between 0 and 1 per cent of GDP would be appropriate for most countries. The IMF (1998) has likewise corroborated the close-to-balance rule in the following simple manner: historical standard deviations of the differences between actual

Figure 13. **Government balances required to avoid an "excessive" deficit**[1]



1. Government balances required to avoid breaching, with 95 per cent confidence over different time horizons, the "excessive" deficit criterion in the Stability and Growth Pact.

Source: OECD Secretariat.

and structural deficits have been about 2 per cent of GDP on average, suggesting that on average deficits should be no more than 1 per cent to rule out deficits in excess of 3 per cent, except in rare cases.

Fiscal sustainability and inter-generational equity

Adherence to the Stability and Growth Pact not only has implications for fiscal policy settings over the cycle, but also for long-term budgetary developments. The OECD Secretariat has in the past attempted to gauge the sustainability of policies by calculating a "tax gap", *i.e.* the immediate and permanent rise in the tax ratio (or fall in the spending ratio) that would be needed to keep the debt ratio from rising over the medium and long run.[44] Work at the European Commission (Franco and Munzi, 1997) has extended this methodology for selected EU countries, starting from 1997 actual budget balances and allowing for achievement of three alternative fiscal targets by 2030: end-period debt ratios consistent with structural budget positions close-to-balance (interpreted as deficits not exceeding 1 per cent of GDP), an average 60 per cent debt ratio, and an unchanged debt ratio. The calculations include estimates of the costs of population ageing beyond the year 2010 based on current pension expenditure projections of national authorities and mechanical estimates of the effects of demographic changes on other age-related expenditures (*e.g.* health, education, family allowances). The results can only be seen as illustrative because they depend on given growth and interest rate assumptions and, most importantly, do not take account of probable reforms to pension policies. They suggest that the close-to-balance rule is considerably more stringent than the stable public debt rule in that achieving it requires larger tax increases or expenditure cuts, while generating significant falls in public debt ratios (Table 20).[45] For the less indebted countries, implementation of the close-to-balance rule also implies larger adjustments than would be required by the Maastricht 60 per cent debt criterion, while for the highly indebted countries, it would bring debt ratios down or close to 60 per cent by 2030. Thus, by implication, adherence to the close-to-balance rule would be a sustainable path (on the basis of the illustrative calculations here) over the period to 2030.

The achievement of a close-to-balance budget over the next decade would also allow countries to meet the worsening of the demographic situation after 2010 with smaller public debts. Nevertheless, sizeable tax increases after 2010 would still be required in most countries in order to stay on the close-to-balance rule. Hence, greater ambition in medium-term fiscal targets

Table 20. **"Tax gaps" needed to achieve alternative fiscal targets over the period 1998-2030**[1]

	1 per cent of GDP average deficit over the cycle	(Implied end-level of public debt ratio)	60 per cent debt criterion	Stable public debt	(1997 level of debt ratio)	*Memorandum item:* 1997 primary balances (as per cent of GDP)[2]
Belgium	1.2	(63)	1.3	0.0	(122)	5.8
Denmark	–1.1	(42)	–1.5	–1.6	(67)	2.8
Finland	0.6	(35)	0.1	0.2	(56)	0.4
Germany	3.3	(43)	3.0	3.0	(65)	0.6
Italy	–0.4	(66)	–0.3	–1.4	(122)	6.4
Netherlands	1.2	(46)	1.0	0.7	(71)	3.6
Spain	0.6	(43)	0.2	0.1	(74)	1.7
Sweden	–0.1	(43)	–0.5	–0.8	(77)	2.3

1. Based on methodology described in Blanchard (1990) and Blanchard *et al.* (1990), the tax gap is calculated over the base year 1997 as the change in tax to GDP ratio immediately required in order to reach, by the end of the period considered, the indicated debt to GDP ratio. Age-related expenditures based on present policies (average of favourable and unfavourable pension scenarios, where applicable) and non-age-related expenditures based on 1997 unchanged ratios to GDP. Macroeconomic assumptions: real interest rate on government debt 4 per cent (representing the approximate long-run real interest rate observed for Germany in 1997), productivity growth 1.5 per cent. A negative gap means that the actual primary balance was already sufficiently large in 1997 to meet the given objective. The calculations are very sensitive not only to the policy and macroeconomic assumptions, but also to the primary balance levels in the base year (1997). For example, the 1997 primary surplus for Italy was relatively high, in part helping to explain the calculated negative tax gap.
2. May differ somewhat from the 1997 estimated levels used in the calculations.

Source: Franco and Munzi (1997).

might be warranted by the future fiscal burden associated with population ageing. It is difficult to gauge the ultimate size of this problem because policies to address it are rapidly evolving. Some countries have begun to encourage privately funded systems, while the OECD has recommended policies to lower future dependency ratios as well (OECD, 1998*c*).[46] Nonetheless, a significant burden is likely to remain. Some countries have concluded that a larger down payment on the debt, *via* current surpluses, must be one of the major policies to tackle the problems raised by ageing.[47] This implies that, even though the close to balance rule may be sufficient to achieve tax smoothing *via* cyclical flexibility over the medium run, tax smoothing over the longer run will require a more ambitious target.

Regional adjustment could pose a problem

Asymmetric (country-specific) shocks could pose a major policy challenge. This is because the loss of monetary and exchange rate autonomy in a currency union removes one of the main tools for macroeconomic adjustment in what will be regional economies. More generally, a monetary policy geared to average euro-area price stability may not be well-suited to the economic situation in every country, especially if there are markedly different cyclical positions in the area. Asymmetries in the monetary transmission mechanism could exacerbate these difficulties.

What remains is fiscal stabilisation and endogenous adjustment in the form of flexible markets. Fiscal transfers could be a buffer for countries while they adapt to demand shocks (*e.g.* a decline in export demand which temporarily reduces their income) but may not be as helpful in the case of a permanent supply shock (*e.g.* an oil price or wage shock) which requires a shift in resources and often in the real exchange rate, *i.e.* a local price/wage change. Currently, the Community is not assigned with a stabilisation function and its budget is far too small to provide this.[48] As a result, a key policy debate has focused on whether assignment of a substantial part of this function to the Community level would be beneficial. It is frequently argued that a federal fiscal structure which allows centralised stabilisation is an important concomitant of monetary union, and that Europe may be at a severe disadvantage in its absence (Cangiano and Mottu, 1998 and Sachs and Sala-i-Martin, 1992). A compelling economic justification is that the larger the fiscal unit, the more efficiently it can perform the insurance function and provide for an increase in social welfare *via* the sharing of risks.[49] The case for centralisation has gained force by arguments that asymmetric shocks could increase due to greater regional specialisation, while the ability to cope with them at the national level will decline due to greater policy leakages.[50] Indeed, in established monetary unions with diverse federal regions like the United States and Canada, fiscal federalism plays a significant role in compensating for the absence of internal exchange rates. Empirical work shows that federal government taxes and transfers in these countries offset up to 30 per cent of regional shocks, though it is difficult to distinguish between transfers to stabilise purely temporary shocks and sustained redistributive transfers to offset persistent regional income differentials (Table 21).

The MacDougall Report (European Commission, 1977) argued for centralised tax and transfer arrangements in Europe similar to those in other federations, estimating that an expansion of the EU budget from less than 1 per cent to around 7 per cent of community-wide GDP would be desirable. In addition to the above economic justifications, an important political justification for such a scheme was that it could go beyond mere stabilisation of temporary shocks to embrace an explicit distributive mechanism to divide the gains from integration in a way that compensates the losers. More recently, Italianer and Vanheukelen (1993) proposed a more modest community-wide insurance scheme, whereby countries would pay into a common pool when growth is above trend and receive transfers when income growth drops below trend.

There are important economic arguments against centralisation as well. First, the large size of government, progressive taxation, and ownership of tax bases in European countries allows for a high degree of income smoothing, at least as much as federal governments in most federations and significantly more than their sub-federal governments (Table 30).[51] Therefore, existing stabilisation mechanisms could prove adequate for EMU, and a member country's access to

Table 21. **Estimates of regional stabilisation**[1]

	Per cent	
Germany	33 to 42	Pisani-Ferry *et al.* (1993)
France	37	Pisani-Ferry *et al.* (1993)
United Kingdom	34	Goodhart and Smith (1993)
United States	10	Von Hagen (1992)[2]
	30	Bayoumi and Masson (1995)
	20	Goodhart and Smith (1993)
	17	Pisani-Ferry *et al.* (1993)
Canada	17	Bayoumi and Masson (1995)
	24	Goodhart and Smith (1993)
Five European Union countries[3]	31	Bayoumi and Masson (1994)

1. Defined as the percentage of regional per-capita income deviations from the national average that are offset by the central government budget; in Germany, inter-regional transfers are also included.
2. Tax side only.
3. Pooled regression.

Source: European Commission (1993), and Bayoumi and Masson (1994).

world capital markets could proxy well for centralised fiscal transfers (*i.e.* insurance across time rather than across regions). Second, public choice approaches stress that centralisation brings with it a costly expansion of bureaucracy which creates new opportunities for rent-seeking (Sinn, 1998). Third, fiscal centralisation would probably require a much higher degree of political unification, but in the European context this could imply an increase in political risk from the aggregation of diverse preferences that could outweigh reduced economic risks through mutual insurance.[52] Decentralisation could also protect citizens from excessive use of taxing powers of central government *via* tax competition. Thus, for the time being the best form of fiscal federalism for Europe is likely to be a decentralised one, as indeed already enshrined in the subsidiarity principle. What is more, established federations are themselves tending in this direction. The United States, for example, is devolving many redistributive programmes to states, though central financing in the form of block grants will continue.

A final criticism is that risk-sharing mechanisms could lead to moral hazard problems, in particular by distorting incentives for labour market reforms.[53] In the case of a large supply shock, which requires a major reallocation of resources, the role of fiscal policy would at best be one of easing the initial shock on incomes and allowing time for the underlying micro adjustments to take place. However, fiscal solutions meant to ease the pain of adjustment could indefinitely postpone it altogether, for example by stemming incipient pressures to migrate out of high unemployment areas or increasing pressures for wage convergence with higher-productivity areas.[54] This has been the outcome (and sometimes intent) of Canadian federal transfers to the Atlantic provinces, or, within Europe, intra-national transfers to eastern Germany or the Italian Mezzogiorno. The economically appropriate policy response to shocks of a persistent nature would be to encourage greater flexibility of labour markets *via* deregulation and tax/benefit reform, not to centralise transfers. Such reforms would have a double benefit, moreover, in that they also increase the scope for flexible national fiscal policies. A recent OECD study (OECD, 1997*b*) suggests that a reduction of about 4 percentage points in the structural unemployment rate, accompanied by a corresponding increase in actual employment, might generate revenues that would improve general government balances by 2½ percentage points of GDP in France and Germany, and by about 4 percentage points in Italy.

An alternative method of income smoothing is insurance *via* international asset diversification. More integrated capital markets can potentially have a large influence limiting the impact of asymmetric shocks to the extent that income sources are diversified and if the relative size of capital income in total income is large. In the event of a shock, more stable income flows would facilitate milder variations in consumption, and deeper capital markets would permit area-wide lending and borrowing to finance transitory cash flow difficulties and smooth consumption. The quantitative importance of this channel and output fluctuations can be large. A study for the United States (Asdrubali *et al.*, 1996) found that integrated capital markets play a larger role than the central government in pooling risk. But in Europe, financial markets are still relatively fragmented and the proportion of household income from geographically diversified financial assets is small. This may, in part, reflect cross country and asset class restrictions on the portfolio composition of supplementary pension funds. Exchange rate risk may have biased the portfolio composition of investors towards home-country assets. Over time, however, the event of EMU, full implementation of the SMP and proposed reforms regulating the permitted asset composition of private pension funds should further enhance capital market integration and competition and serve as a catalyst for transformation in the financial sector (McCauley and White, 1997). On the other hand, if national borders *per se* continue to channel flows of capital to domestic investments (Helliwell and McKitrick, 1998), the potential for private capital markets to absorb shocks will remain limited.[55] In the United States, where capital markets are considered more integrated and deeper, over 90 per cent of US portfolios were invested in American securities (French and Poterba, 1991).

Tax competition

The call for greater co-ordination of national tax systems is a long-standing policy issue in the EU. Policymakers are concerned because differences in tax regimes can alter the direction of trade and factor flows. As economic integration within the euro area deepens, economic pressures to harmonise tax systems and social spending programmes may intensify. Concerns about rising mobility of capital and sales tax bases has led to active discussion in the EU regarding greater co-ordination of tax systems in order to preserve tax base integrity and national fiscal autonomy. Concerns about expenditure programmes have been less prominent, although where social security systems are involved, tax and spending issues cannot easily be separated.[56] Most of these problems concern the single market and the EU, but could be exacerbated with EMU.[57]

Tax competition could result in less taxation of capital than is socially desirable, requiring too great a tax burden on labour, if expenditure levels are to be maintained.[58] Since intra-EU labour mobility is still low (see Chapter IV) considerable variation in personal income taxation levels have little consequence, except for highly trained specialists. But tax competition may nonetheless lead to pressure to reduce taxes on labour, in particular social security charges, in order to maintain competitive levels of labour costs. Furthermore, if it creates cross-border variation in effective rates of capital taxation, this could create distortions in the international allocation of investment and saving; variation in indirect taxes could distort spending patterns and trade flows. On the other hand, tax competition can be beneficial if, by forcing governments to contain their expenditures, it makes them more efficient. This would involve pressure to minimise tax distortions and to cut the most wasteful forms of spending. Both the United States and Switzerland, for example, rely on tax competition to hold down the size of government, although federal tax rates put a floor under tax competition within these federations.

To date, little progress has been made in the co-ordination of taxation from capital income (corporate income tax and the taxation of income from savings). The main tax co-ordination measures adopted in the EU thus far relate to indirect taxes, including the setting of minimum rates and limiting the number of reduced rates. Nonetheless, the VAT system is still based on the traditional destination principle, implying a complex system of reporting for enterprises, while considerable differences in tax rates induce wasteful cross-border shopping.

Given the high mobility of capital, taxes levied on capital income are the most vulnerable to tax competition. On the level of individual bank deposits and portfolio investments, there is ample evidence of a massive flow to countries which do not tax interest paid to non-residents and do not exchange information with tax authorities in other countries. In response to this problem, there has been a recent European Commission proposal to establish a common minimum withholding tax of 20 per cent on interest earned by EU residents within the EU. There have also been proposals to design systems to share tax information and co-operate in enforcement. While such arrangements may not work well in the absence of wider multilateral agreements, as EU citizens could take their savings to non-EU countries, capital mobility will still be lower between the euro area and the rest of the world than within the euro area, not least due to exchange risk.

A particular area where at least some co-ordination would appear to be desirable is corporate tax systems. These differ markedly across EU countries, in part because of differences in accounting and legal practices, causing non-neutral treatment of many activities. Besides differences in tax rates and tax bases, the tax treatment of cross-border income flows varies.[59] Furthermore, preferential tax regimes both in and outside the EU open up new avenues for avoidance and evasion. The European Commission has proposed a first step in co-ordinating the collection of corporate taxes by eliminating taxation of cross-border intra-company transactions (royalty and interest payments). Ireland has meanwhile moved to equalise corporate tax rates across industries, ending *de facto* discrimination in favour of foreign firms.[60]

In the longer run, the issue is whether labour mobility would rise sufficiently to promote broader fiscal competition. If factor mobility were to become high overall, stronger fiscal competition will weaken the fiscal powers of the nation state. The scope for redistribution *via* the tax system would be diminished and tax competition could also lead to a closer link between taxation and public service provision (*e.g.* infrastructure).[61] This may lead to increased pressure to link benefits more closely to contributions, for instance defined contribution pensions to make them more portable across the EU. But it could also lead to adverse types of spillovers due to people with low productivity choosing countries with high benefit levels and *vice versa.* Future pension financing problems could also induce workers to migrate out of countries with the most severe ageing crisis, exacerbating their funding problem. Pressures to co-ordinate social spending may thus increase. As fiscal competition does not stop at the borders of the EU, harmonisation might have to be sought with other major players in global markets. The arguments for tax co-ordination or competition also depend on views about the extent of government failure. If governments are judged to be ineffective, tax competition will be welcome, as it would act as a brake on a government's capacity to appropriate and waste resources. Unfortunately, the scale of government failure is very difficult to quantify.

The macroeconomic policy mix and policy co-ordination

There is currently no political support for centralisation of macroeconomic policy and nor is the economic case clear cut. The question arises, however, whether there is a need for a looser form of policy co-ordination given policy externalities (spillovers) in monetary union. The institutions and processes for co-ordination are already well in place. First, the excessive deficit procedure brings significant peer pressure to bear on budget policies. Second, there are the "Broad Economic Policy Guidelines" which allow the Council to make country-specific recommendations on both macroeconomic and structural policies, and which reflect the Community's policy consensus. Third, there are the high-level EU policy groups such as Ecofin (Finance and Economics Ministers), the Economic and Financial Committee and the Euro-11 Group (a subgroup of Ecofin specific to EMU). Practical difficulties in co-ordinating policies exist nonetheless. One is that the euro area is characterised by a complex decision making process that requires qualified majority voting or unanimity in order to implement common policies or act on the recommendations of the Commission. This could in some situations make it difficult to achieve an appropriate policy mix given the diverse preferences and economic size of EU countries.

The Stability and Growth Pact addresses longer-term externalities related to persistent biases toward excessive deficits and fosters monetary policy credibility. However, it does not address the issue of whether macroeconomic spillovers in EMU are important enough to justify additional co-ordination of policies over the cycle, and this remains an open issue. In part it will depend on the economic nature of the shock encountered. If the shock is country-specific (*i.e.* asymmetric), the appropriate instrument is national fiscal policy, and there is no clear case for co-ordination. If the shock is euro area-wide (*i.e.* symmetric), and has implications for price developments, the primary instrument should be monetary policy. There is a stronger case for co-ordination if spillovers between monetary and fiscal policies are significant. This is more likely to be the case when large euro area economies, or a number of small economies simultaneously adjust fiscal policy, since their actions may have an impact on euro area-wide activity and inflation prospects to prompt a monetary policy response.

In order to examine the issue of spillovers between monetary and fiscal policies over the cycle, the OECD Secretariat's Interlink model was simulated to provide insights into the effectiveness of fiscal stabilisers of: *i)* moving to a common monetary policy; and *ii)* inconsistent fiscal responses to a common shock due to Stability and Growth Pact constraints. The results are reported in Table 22. They show that switching from the EMS to a common monetary policy regime sharply increases the effectiveness of fiscal stabilisation in Germany. This is because the monetary policy response to the inflationary feedback of a German fiscal expansion is now geared only to the *average* of EMU inflation rates, and is thus much weaker than it was with a German-led monetary policy which responded to the *German* inflation rate and then quickly spread to other countries *via* the EMS fixed exchange rate system having negative spillovers on these countries with further negative feedback on Germany. In the second scenario, it is assumed that about half of the EMU countries do not allow fiscal stabilisers to work in response to a negative common demand shock, because they are too close to the 3 per cent limit. This does not appreciably lessen the potency of stabilisation in the countries which are in a position to do so, as all countries

Table 22. **Fiscal-monetary policy spillovers in EMU**

A. Difference between fiscal multipliers under EMU and EMS (average over three years, as a per cent of GDP):	
Germany	0.55
Average of other EMU countries	0.11
B. Loss of stabilising power when only half of EMU countries allow fiscal stabilisers to work in response to a common demand shock: (percentage change over two years in fiscal multiplier from case where all countries allow stabilisers to work)	
Countries allowing stabilisers to work	6%
Countries not allowing stabilisers to work	40%
All countries	23%

Source: OECD Interlink model.

would benefit from a monetary policy response which is stronger when countries do not stabilise, because inflationary feedbacks are then weaker. Pursuing sensible stabilisation policies over the course of the cycle could prove easier in monetary union than it was in the earlier regime which was on occasions characterised by an inappropriate policy mix and exchange rate fixing that was not always credible.

With regard to issues arising with countries outside the euro area, for example in the context of the G-7 or other international fora, one of the benefits of EMU is that member countries can collectively act as an influential member and negotiating partner. However, this will require prior co-ordination. The policy mix in the euro area will be an important determinant of exchange rate fluctuations and concerns about over- or under-valuation of the euro could have political consequences. Already the fairly large and rapid appreciation of the euro area's effective exchange rate in the second half of 1998 has led some political leaders to advocate target zones for the value of major currencies, and after 1 January 1999, for the value of the euro *vis-à-vis* the dollar and the yen.[62] The Maastricht Treaty does confer on euro-area governments, acting unanimously, the prerogative after consulting the ECB and without prejudice to the objective of price stability to "conclude formal agreements on an exchange rate system for the euro in relation to non-euro currencies". And in the absence of such an exchange rate system, to "formulate general orientations for exchange rate policy in relation to these currencies".[63]

Advocates of exchange rate target zones argue that they limit exchange rate fluctuations and promote more stable trading relationships. The impact, however, of exchange rate fluctuations on euro area activity is reduced compared with each member State, since the euro area is a relatively closed economy. Imports represent some 15 per cent of GDP, which is slightly higher than the levels in the United States (13 per cent) and Japan (10 per cent). That the euro area will be much more closed than that of the constituent countries (including trade with each other) does not necessarily imply, however, that developments in foreign markets will only have a small effect on growth, especially over the cycle. Changes in competitiveness against trading partners outside the area also matter in this context. Although euro area competitiveness measures reveal no clear upward or downward drift over the past three decades, substantial movements have occurred and persisted over a number of years, bringing about a fairly quick and sizeable adjustment in trade volumes.[64] Net export contributions to GDP growth over the past ten years have not only been somewhat larger than in the United States, but also similar to that in many of the smaller and more open OECD economies. Even if the three major economic zones agreed on target zones it is not clear that wide fluctuations could be avoided. Given the relatively low weight of the dollar and yen in the euro effective exchange rate (see Figure 2 in

Chapter I), the effective exchange rate could still be subject to large fluctuations associated with bilateral movements in other currencies, such as the pound sterling.

Empirical studies find little evidence that high exchange rate volatility *per se* has an adverse effect on trade and investment *via* increased uncertainty (Bacchetta and van Wincoop, 1998). Nonetheless, substantial and protracted currency misalignments can have significant and persistent effects on bilateral trade flows and indirectly lead to pressures for inappropriate policy choices. For instance, following the huge dollar appreciation over the first half of the 1980s, the US trade deficit widened sharply to almost 3.5 per cent of GDP in 1987 and led to calls for protectionist policies. But it is not clear that this episode was a characteristic of floating exchange rates *per se*, or whether it reflected other factors which altered the market value of the exchange rate. Movements in real bilateral exchange rates also reflect differences in productivity growth, terms-of-trade developments, asymmetric shocks and differences in cyclical positions between economies. Over the period of the sharp US dollar appreciation in the early 1980s, the economy was characterised by a mix of loose fiscal and tight monetary policy. This put upward pressure on domestic US interest rates, attracted large inflows of foreign capital and led to an appreciation of the currency. To the extent that differences in the policy mix contributed to the persistence of the currency misalignment, the potentially adverse consequences of the latter could be minimised by ensuring that domestic policy aims to prevent large imbalances from emerging.

There are a number of problems related to the implementation of target zones. For instance, it would be difficult to get participants to agree on the central exchange rate parity as well as the width of the band. Models which attempt to estimate the equilibrium value of a currency give a wide range of estimates. For example, fundamental equilibrium exchange rates of the dollar *vis-à-vis* the Deutschemark calculated by Williamson (1994), based on a range of macro models, vary by as much as 26 per cent. Secondly, a repercussion of subordinating domestic interest rate policy to exchange rate stability is that some volatility will be shifted from the exchange markets to money and bond markets. Interest rate sensitive sectors of the euro economy would face heightened risks, while those producing tradeable goods would benefit. Furthermore, interest rate moves to keep exchange rates within bands may not necessarily be consistent with domestic inflation goals. There is thus a risk that credibility of monetary policy may be lost, raising risk premia and undoing part of the benefits of monetary union.

III. Susceptibility to shocks

This chapter examines the susceptibility of national and regional economies in the euro area to asymmetric shocks and how it may have changed over time. The first part looks at the nature of economic shocks and the techniques used to identify them empirically. The second part considers different measures to assess the degree to which initiatives such as the single market process and the abolition of capital controls have led to greater product and financial market integration over the past two decades. Finally, the issue of whether greater integration has led to closer convergence or greater specialisation across euro area countries is briefly reviewed.

Assessing the susceptibility to shocks

Economic shocks are diverse

There are many categories of shocks which could hit economic areas. Shocks can be permanent or temporary, on the demand or supply side, and sector, region or country specific. A permanent supply shock could be a new technology which reduces production costs in general, within a sector, or even creates a new sector (*e.g.* information and communications technology). Drought conditions on the other hand, could substantially reduce the output of agricultural products, but only for as long as the drought persists. Typically, permanent shocks are supply side related and temporary shocks demand side and/or policy induced. Permanent demand shocks are scarce and, according to conventional wisdom, have no long-run impacts on output.[65] But, the adjustment path may differ depending on the policy response and, if hysteresis effects are evident, even a long-run impact on output could occur.

Whether policy should respond to shocks – and the nature of the reaction – depends on the kind of shock. It is, therefore, important to be able to identify the source of the shock. Box 5 provides an overview of the techniques employed and the main results from recent studies. Table 23, provides a taxonomic summary of the role which macroeconomic and structural polices can play

Box 5. Measuring economic shocks

The most common empirical technique to identify real shocks is vector autoregression analysis (VAR). *Annex III* provides an overview of how the technique is deployed, its strengths and weaknesses. In summary, it is a useful method to appreciate a country's, or region's, historical exposure and adjustment to shocks. But it is less helpful for identifying the specific nature of these shocks, when they occur and the appropriate policy responses. For instance, whether a shock is linked to labour or product markets, obviously has different policy implications. It is important, therefore, to identify these differences, and understand how and why both asymmetric and common shocks can lead to diverse impacts between regions and across countries. These differences are directly linked to divergent industrial structures, heterogeneous institutions (*e.g.* wage determination), regulatory frameworks and preferences, and could lead to differences in inflation rates, because of differences in labour market behaviour, external positions and ultimately growth. VAR analyses, no matter how sophisticated, cannot disentangle this. Rather, it requires detailed structural examination, and particularly of labour and product markets. Improving the functioning of these markets would strengthen the key main alternative adjustment cbannels in tbe euro area and thereby help promote a successful common currency area.

A vast empirical literature has investigated the nature of, and adjustment to, shocks in the euro area. Three key questions frequently posed are: the degree of symmetry or convergence in the euro area; the frequency of asymmetric shocks; and how economies adjust to shocks. Typically these issues are assessed relative to an existing currency area, such as the regions of the United States. Some studies focus just on quantity indicators, such as output and employment changes (Table 24), others on price indicators, usually the real exchange rate (Table 25) and yet others examine both (Table 26). The results from the extensive array of studies, many using VAR techniques, provide some helpful insights. Concerning the symmetry of shocks the results are equivocal. Roughly half the studies cited find shocks have a broadly symmetric impact and the other half suggest the opposite. But there appears to be greater unanimity regarding symmetry among "core" EU countries (Bayoumi and Eichengreen, 1993; Karras, 1994; and Helg *et al.*, 1995). This finding is less robust at the EU regional level (De Nardis *et al.*, 1996 and De Grauwe and Vanhaverbeke, 1993). When compared with the United States, most researchers concluded that US regions were more integrated, and therefore less affected by idiosyncratic shocks and that adjustment is typically faster in US regions compared with EU regions (Eichengreen, 1990; Decressin and Fatas, 1995; and Bayoumi and Eichengreen, 1993). The research results, however, provide little insight concerning the source, size and evolution of supply shocks over time.

in response to different types of shocks. In general, macroeconomic policies are not well suited to respond to permanent supply side shocks. Such shocks typically require some form of structural change. Adjusting short term interest rates, in some circumstances, may help provide a better general economic climate for required structural initiatives, but will not be able by itself to achieve the needed adjustment. In contrast, macroeconomic stabilisation, monetary policy in particular, is more suitable when a shock is temporary and impacts on inflation prospects within the euro area-wide economy. The macroeconomic policy stance also

Table 23. **Taxonomy of policy response to asymmetric economic shocks**[1]

Temporary				Permanent			
Demand		Supply		Demand		Supply	
Country	Sector	Country	Sector	Country	Sector	Country	Sector
• Monetary policy may help stabilise aggregate demand • Fiscal policy may help stabilise output • Limited role for structural policies *e.g.* Change in export demand	• No role for monetary policy • Fiscal policy may help ease temporary income losses • Limited role for structural policies *e.g.* Drop in UK beef demand following BSE scare	• Monetary policy may help stabilise output. By definition price effects are transitory • Fiscal policy may also help stabilise output • Limited role for structural policies *e.g.* Oil price shock	• No role for monetary policy • Fiscal policy may help ease temporary income losses • Limited role for structural policies *e.g.* Drought or floods	• Limited role for monetary policy reflecting change in the inflation output relationship • Limited role for fiscal policy • Role for structural policies to support and avoid delaying resource allocation *e.g.* German unification	• No role for monetary policy • No role for fiscal policy • Role for structural policies to support and avoid delaying resource reallocation *e.g.* Preference shift	• Limited role for monetary policy reflecting change in the inflation output relationship • Limited role for fiscal policy • Role for structural policies to support and avoid delaying resource reallocation *e.g.* Wage shock	• No role for monetary policy • No role for fiscal policy • Role for structural policies to support and avoid delaying resource allocation *e.g.* Technological innovation

1. Responses obviously depend on the policy objectives. This table assumes the goals are price stability, low output volatility and resource allocation efficiency. While in the context of EMU structural policies are clearly important, reforms that facilitate product and labour market adjustment are also beneficial in terms of supporting overall economic performance.

Source: OECD Secretariat.

Table 24. **Asymmetric shocks and their absorption – quantity indicators**

Author(s)	Research topic[1]	Area researched	Reference area	Major findings
Cohen and Wyplosz (1989)	Output changes, 1965-87	Germany, France	–	Mostly symmetric shocks.
De Grauwe and Vanhaverbeke (1993)	Output and employment changes, 1975-88	EU member countries	European regions	Symmetric development at the country level, but asymmetric development at the regional level.
De Nardis *et al.* (1996)	Output changes, 1978-89	European regions	EU member countries	Symmetric development at the country level, especially among a core group, asymmetric development at the regional level.
Bini, Smaghi and Vori (1992)	Output changes, 1976-90	EU member countries	US states	Symmetric in Europe, because of strong common sectoral co-movements.
Funke *et al.* (1997)	Output changes, 1970-92	EU member countries	–	Largely asymmetric development, but convergence over the past ten years, especially among a core group.
Helg *et al.* (1995)	Change in industrial production (1975-92)	EU member countries	–	Symmetry in a core group, asymmetry in the other countries.
Viñals and Jimeno (1996)	Unemployment, 1969-93	EU member countries	US states	Symmetric development because of strong EU-wide component, no core group.
	1983-93	European regions	–	Asymmetric development because of strong region-specific component.
Decressin and Fatás (1995)	Employment changes, 1968-87	European regions	US states	Largely asymmetric development; stronger in Europe than in the United States. Very low shock absorption capacity in Europe. Lower employment leads to lower labour force participation and higher unemployment.
Blanchard and Katz (1992)	Employment changes, 1948-90	US states	–	Developments largely asymmetric, but high shock absorption capacity, largely due to labour mobility.

Table 24. **Asymmetric shocks and their absorption – quantity indicators** *(cont.)*

Author(s)	Research topic[1]	Area researched	Reference area	Major findings
Bayoumi and Prasad (1996)	Output and employment changes (1970-89)	EU member countries	Eight US regions	Mostly symmetric shocks and of similar magnitude. But regional shocks more important for non-traded goods in the United States and country specific shocks in traded good sectors in the European Union. United States has a more integrated labour market.
Forni and Reichlin (1997)	Output changes (1977-93)	European regions	US counties and states	Similar degree of symmetry as in the United States. Shocks more persistent in Europe. Differences between Europe and United States reflect differences in market structures.
Fatas (1997)	Employment changes (1966-92)	EU member states, European regions	–	Symmetry of regions across countries has increased over time, but has decreased within countries.

1. Output changes refer to changes in real GDP.

Source: Dohse and Krieger-Boden (1998) and OECD Secretariat.

Table 25. **Asymmetric shocks and their absorption – price indicators**

Author(s)	Research topic[1]	Area researched	Reference area	Major findings
De Serres and Lalonde (1995)	Variability of permanent shocks to real exchange rates (CPI and wholesale prices), 1970-91	Eight European countries	–	Symmetry *vis-à-vis* Germany in all countries except United Kingdom.
Poloz (1990)	Variability of real exchange rates (based on unit labour costs), 1971-79	EU member countries	Canadian Provinces	Symmetry greater in Europe
Eichengreen (1990)	Variability of real exchange rates (based on consumer prices), 1970-87	EU member countries	US census regions	Asymmetry greater in Europe
De Grauwe and Vanhaverbeke (1991)	Variability of real exchange rates (based on unit labour costs), 1975-88	EU member countries	European regions	Asymmetry between countries greater than between regions
Eichengreen (1990)	Share price development, 1970-87	Paris and Düsseldorf	Toronto and Montreal	Asymmetry with diminishing tendency
Funke *et al.* (1997)	Interest rate differential on long term bonds, 1996-97, monthly	EU member countries	–	Symmetry among a core group, convergence of the others

[1] Concerning real exchange rates, the focus is on long-term variability.

Source: Dohse and Krieger-Boden (1998) and OECD Secretariat.

Table 26. **Asymmetric shocks and their absorption – price and quantity indicators**

Author(s)	Research topic[1]	Area researched	Reference area	Major findings
De Grauwe and Vanhaverbeke (1991)	Output and employment changes, variability of real exchange rate (based on unit labour costs), 1975-88	EU member countries	European regions	Greater asymmetry of real exchange rate combined with greater symmetry of output changes at the international as compared with the interregional level.
Bayoumi and Eichengreen (1993)	Output and price changes	Group of EU member countries	US states	Symmetry for a core group of EU countries, asymmetry for the others. Greater asymmetry of shocks in Europe than in the US; longer adjustment lages. Demand shocks are more uniform, but less pronounced compared to supply shocks which are more idiosyncratic.
Ballabriga *et al.* (1993)	Output and price changes (1964-91)	Germany, France, Spain, United Kingdom	–	Asymmetry of shocks in Europe. Symmetry of common or world shocks.
Melitz and Weber (1996)	Output and price changes (1975-90)	Germany, France	–	Asymmetry of shocks. Common monetary policies tend to promote monetary integration by bringing interest rates closer together.
Karras (1994)	Output, employment and price changes 1960-88	Germany, France, United Kingdom	–	Symmetry of shocks in the three countries. Even closer symmetry of business cycles.

1. Output changes refer to changes in real GDP.

Source: Dohse and Krieger-Boden (1998) and OECD Secretariat.

depends on the magnitude of the shock. If the impact of an asymmetric shock were to be large and widespread, the consequences on the euro area economy might be big enough to prompt a response from the monetary authorities. In such a case, those countries in the euro area not affected by the shock would need to counteract the monetary impulse to aggregate demand with changes in fiscal policy. Most sector-specific shocks are unlikely to induce a sizeable deterioration or improvement in overall economic conditions. Oil price shocks, however, may prove an exception. Although no initial participants in EMU are major oil producing countries, the ramifications of an oil supply shock could impact on the price level and change the stance of macroeconomic policy, as was the case with the oil shock in the early 1970s.

Ever closer integration?

In general terms, a monetary union is less susceptible to asymmetric disturbances the more its regions are integrated with each other and diversified within themselves. Closer economic integration broadens the channels for shock transmission and lowers the vulnerability to asymmetric shocks. Moreover, the more closely markets are integrated, the more amenable countries participating in monetary union are to support a common monetary policy stance, and the incidence of country-specific shocks should also be lower.

There are three key forces that promote economic integration. These are the degree of trade interdependence, the degree of intra-industry trade, and closer income linkages, such as increased foreign direct investment or closer financial market interactions. Over the past 20 years, each of the three factors conducive to integration have risen sharply and promoted a closer synchronisation of business cycles across euro area countries. This process has also been facilitated by macroeconomic convergence prior to the launch of the euro. Trade interdependence, measured by the level of intra euro area trade as a per cent of GDP has almost doubled since 1970 to reach 13 per cent in 1997, in part boosted by rapid growth in intra euro area trade among the more recent members of the European Union. Euro area intra-industry trade flows for manufactured goods have also risen sharply over the same period. The most rapid rises have been concentrated in those countries which joined the European Union at a later stage and which are relatively less industrially advanced (Portugal, Spain, Ireland and Finland). The intensity of intra-industry trade in more industrially mature economies (France, Germany, Belgium and Italy) has been relatively high since 1970, but the upward trend is still evident (Table 27).

Certain financial (*e.g.* retail banking) and physical asset markets (*e.g.* public procurement) have traditionally operated on a national basis. The single market process, liberalisation of capital controls and the advent of the euro have motivated firms in these domains to adopt a greater European focus. This

Table 27. **Intensity of intra-euro area intra-industry trade**[1]

Manufactured goods

	1970	1980	1985	1990	1997[2]
Austria	53	65	74	79	78
Belgium	77	86	88	83	89
Finland	21	35	35	41	51
France	82	84	85	86	90
Germany	70	75	76	79	81
Ireland	27	61	55	54	42
Italy	70	61	65	67	70
Netherlands	68	69	67	77	77
Portugal	28	41	54	53	64
Spain	43	69	67	75	81

1. Intra-industry trade within the euro area for industry i is the value of trade remaining in that industry after the subtraction of the absolute value of industry i euro area net exports $|X_i - M_i|$ from the total value of trade in industry i $(X_i + M_i)$. For comparison across countries and industries, the measures are expressed as a percentage of total value of trade in industry i $(X_i + M_i)$. Trade flows are measured at the three digit level. Summation over all industries provides an aggregate measure of intra-euro intra-industry trade as follows:

$$\frac{\Sigma (X_i + M_i) - \Sigma |X_i - M_i|}{\Sigma (X_i + M_i)} * 100$$

2. 1996 for Netherlands, Portugal and Spain.

Source: OECD, *Foreign Trade Statistics*.

process has already, for some years, been manifest in the hectic cross border merger activity, as financial companies forge strategic alliances and seek greater scale economies. On the other hand, implementing and enforcing a single market for, and pan-European competition in all sectors so far remains largely elusive. A European Commission report (EC, 1998) estimated that significant barriers to market access remained in sectors accounting for about half of the EU GDP. No one factor explains the uneven progress made towards the goal of a single market, although state aid to industry, services and agriculture are frequently cited as a possible factor that may have prolonged the accomplishment of a single market in some sectors. Box 6 reviews progress made in implementing the Single Market Programme (SMP) and state aid in EU member States.

A measure of closer asset market integration is the level of foreign direct investment flows among euro area countries. Inward foreign investment from other euro area countries has risen in virtually all euro area countries as a share of their GDP over the past 5 years, compared with the second half of the 1980s (Table 28). The two exceptions are Germany, where there was a slight decline, and Ireland. Although Ireland receives a considerable amount of foreign investment, only a very small fraction – less than 0.1 per cent of Irish GDP per annum – comes from other euro area countries. Typically those countries which attract a

Box 6. The Single Market Programme and state aid

The single market initiative requires, *inter alia,* free and undistorted competition. In the past, prices in many sectors were subject to government control and were set with only partial reference to marginal production costs. Many sectors were sheltered from foreign competition and entry barriers restricted new domestic entrants in some industries. As a consequence, price levels for similar products varied significantly between EU countries. The gradual dismantling of internal and external trade barriers and the implementation of the SMP has led to substantial progress towards reaching more integrated product markets, especially for manufactured goods. As a result, dispersion in price levels between EU countries has fallen. Price similarity indices provide a summary measure of price dispersion. These show even over a relatively short period, that price levels have further converged towards the euro area average in virtually all EU countries, and that integration is now at a fairly high level (Figure 14). Other measures of dispersion, however, such as the coefficient of variation suggest that price convergence in the EU area has progressed at a somewhat slower pace, particularly over the last few years. Price level convergence is most evident among those countries which have joined the European Union in the past 15 years and among the relatively less industrialised countries, reflecting in part a catch-up process. The largest remaining differences in price levels across EU countries are concentrated in non-traded products, such as rent, education and health care, or products where taxation rates vary widely, such as tobacco and alcohol. But for some traded goods, such as new motor vehicles, wide divergence across countries remain. Work by the European Commission (1996*a*) concluded that the Single Market Programme reduced average mark-ups in manufacturing by half a percentage point between 1987 and 1991. Compared with the United States, however, large differences in mark-ups remain evident. OECD work found that average mark-ups in the EU were some 5 percentage points higher than in the United States, and in some countries (France) 10 percentage points higher (Oliveira-Martins, Scarpetta and Pilat, 1996). Only the United Kingdom has an average mark-up for manufacturing goods that is comparable with the United States. Other studies (Allen, Gasiorek and Smith, 1996) found that those sectors most affected by the SMP have responded with relatively larger falls in profit margins and profit margins have also narrowed in those sectors recently exposed to greater competition (London Economics, 1996). The launch of the euro should help accelerate this process, as price differences between countries become more transparent.

Progress, however, has been uneven between countries and markets, and further gains are feasible. While competition in goods markets has increased substantially, many services have remained sheltered from international competition and implementation of the SMP has been slow. For example, telecommunications and energy have only recently been opened to greater competition. In other areas, such as motor vehicles, markets are not well integrated, and for public procurement, implementation of the SMP has barely advanced. Overall, however, not much remains to be done before all Single Market legislation is transposed into national law although enforcement of the legislation is uneven across member States. In late 1998 only 15 per cent of Single Market Directives had yet to be transposed, compared with almost 30 per cent a year earlier. These are mainly in the public procurement, transport, telecommunication and intellectual and industrial property sectors and in part reflect problems with the establishment of agreed technical standards in some of these areas.

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Not all obstacles to the SMP are legal. One area, of particular relevance, which can delay full implementation of the SMP is state aid. In the absence of a rationale for state aid, such as market failures, subsidies tend to prevent markets from working efficiently and are in principle incompatible with the common market. Subsidies are frequently used by governments to assist ailing firms, or sectors in decline which are often located in depressed regions. Sometimes they are justified on the basis that they help ease the transition costs of structural adjustment, but there is the suspicion that they may in fact delay the necessary adjustment. If this is the case, subsidies impose added welfare losses, and could also impinge on the euro area's overall ability to cope with asymmetric shocks. International comparisons of state aid are difficult, due to different measurement concepts, coverage and methods of delivering assistance.* Based on national accounts data, subsidies are used more extensively in EU countries, compared with the United States and Japan (Figure 15). The euro area on average spends some 2 per cent of GDP each year on subsidies, a level that is four times higher than in the United States and not much lower than the peaks reached in the mid-1980s. Spending on subsidies is unevenly distributed across euro area countries (Figure 15, lower panels). Germany and Italy each spend close to 2 per cent of national GDP on assistance to manufacturing and some service industries alone. Adding agricultural aid would considerably raise the level. Moreover, in recent years there has been a sharp rise in *ad hoc* aid granted to specific sectors or to rescue firms in financial difficulty, which is generally more distorting, because it defers necessary adjustment and it assists specific firms.

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* See OECD (1998*e*), *Spotlight on Public Support to Industry*.

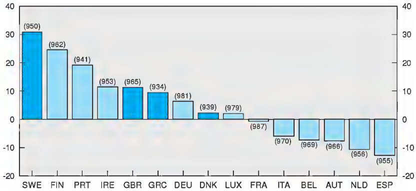
Table 28. **Foreign direct investment flows in euro area economies**

As a per cent of GDP

	Inward investment from other euro area countries		Outward investment to other euro area countries	
	1986-90	1991-95	1986-90	1991-95
Austria	0.26	0.28	0.17	0.24
Belgium-Luxembourg	1.86	2.93	1.32	3.01
Finland	0.07	0.13	0.45	0.28
France	0.29	0.45	0.63	0.58
Germany	0.12	0.10	0.46	0.56
Ireland	0.15	0.07	0.00	0.00
Italy	0.16	0.17	0.28	0.28
Netherlands	0.62	0.98	0.65	1.44
Portugal	0.88	0.93	0.05	0.37
Spain	1.12	1.03	0.22	0.18

Source: OECD Secretariat.

Figure 14. **Price similarity indices**[1]
Difference between 1990 and 1996



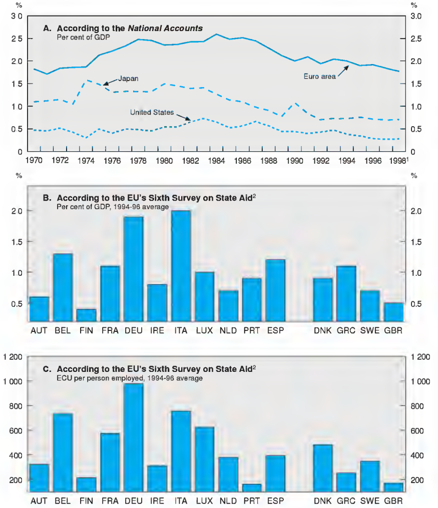
1. The similarity of the structure of relative price levels between EU countries and the euro area is measured by the correlation coefficient, which is obtained by regressing the relative price level for each basic consumption heading of the EU country against the corresponding relative price level of the euro area. The figures between brackets represent the value in 1996.

Source: OECD Secretariat.

large level of inward investment, also have a high level of outward investment towards other euro area countries (Belgium,[66] Netherlands). The exceptions are the more rapidly advancing economies where profitable domestic investment opportunities are probably greater. Although these flows are very small in comparison with trade flows, over time they accumulate to represent a sizeable stock of foreign owned assets. For example, the Dutch stock of foreign investment abroad is currently just under 16 per cent of GDP.[67] Income from these assets is therefore of significance and would, in the advent of an asymmetric shock in the Netherlands, partly counter the negative impact. Moreover, foreign investment statistics exclude subsequent investment outlays once the initial installation is made and, therefore, underestimate the scale of economic linkages.

More sophisticated methods for investigating integration also suggest a trend towards closer economic linkages between euro area economies. Clustering techniques were used to identify which country groupings are most similar, and how and whether these patterns have changed over time, based on a set of six macroeconomic indicators (see *Annex IV* for a detailed description of the method followed). The variables used were growth in real GDP and private sector employment, inflation, the government budget and current account balance as a share of

Figure 15. **State aid in OECD countries**



A. According to the *National Accounts*
Per cent of GDP

B. According to the EU's Sixth Survey on State Aid[2]
Per cent of GDP, 1994-96 average

C. According to the EU's Sixth Survey on State Aid[2]
ECU per person employed, 1994-96 average

1. OECD estimates.
2. Including direct grants, tax reductions, equity participations and aid elements contained in soft loans, tax deferrals and State guarantees but excluding EU subsidies.

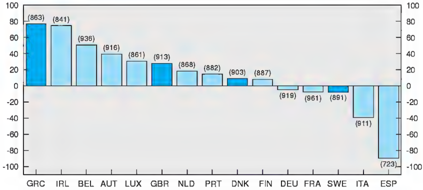
Source: OECD, *National Accounts* and European Commission (1998), Sixth Survey on State Aid in the European Union in the Manufacturing and Certain Other Sectors.

GDP and the long-term interest rate on government debt. The choice of series is somewhat arbitrary, but encompasses the Maastricht convergence criteria (apart from the level of public debt), and movements in real GDP appear an obvious candidate for evaluating integration.

The results from clustering techniques are sensitive to the choice of variables and periods. Nonetheless, a core group of European member States is consistently found to exist. Moreover, the number of members of this group has increased in recent years, suggesting a growing level of economic integration. Germany, Austria, Belgium and the Netherlands, are virtually always clustered in one group. This probably reflects the fact that these countries have effectively already adopted a common monetary policy, by linking their exchange rate to the Deutschmark. The main exception was in 1990 when German re-unification led to substantially different economic performance in Germany, compared with its neighbouring countries. Over more recent periods France and Italy are also part of the core group. Studies find, however, that the northern regions of Italy have long belonged to a core, but that vastly different industrial structures between the north and the south result in an average for the whole country that, until recently, is apart from the core countries (Forni and Reichlin, 1997).[68] An overall index of

Figure 16. **Private consumption similarity indices**[1]

Difference between 1990 and 1996



1. The similarity of the structure of real private consumption between EU countries and the euro area is measured by the correlation coefficient, which is obtained by regressing the real values for each basic consumption heading of the EU country against the corresponding real value of the euro area. The figures between brackets represent the value in 1996.

Source: OECD Secretariat.

economic likeness based on the clustering experience can be compiled. This measure shows a gradual trend increase, albeit partly cyclical, towards greater integration. Those countries which have initially opted to remain outside of the monetary area, do not usually belong to the core group, and Greece is always too dissimilar to be in a cluster with other economies.

Examining consumption similarity indices provides another synthetic measure of trends in and the degree of economic integration. The similarity of the structure of consumption is measured by the correlation between the real value of each component of consumption and the corresponding value of the partner country. This exercise considers the components of real consumption in each euro area country against the euro area as a whole. The results show a rather high degree of integration (with a correlation coefficient close to 1 000) in most countries except Spain (Figure 16). Furthermore, the degree of integration between 1990 and 1996 has increased in virtually all EU countries, including the EU "outs".

In summary, substantial progress has been made towards more closely intergrated euro area economies. In part, this process has been facilitated through the Maastricht convergence criteria. But, the trends are also structural and have been a feature of European integration over the past couple of decades. Some countries are more closely integrated and would appear "fitter" in terms of synchronisation of business cycles than others. Table 29 shows that the correlation of

Table 29. **GDP growth correlations in the euro area**[1]

	1977-86	1987-92(H1)	1992(H2)-97
Germany[2]	0.89	0.28	0.90
France	0.72	0.85	0.98
Italy	0.93	0.65	0.86
Austria	0.65	0.71	0.56
Belgium	0.51	0.92	0.97
Finland	0.17	0.68	0.87
Ireland	0.30	0.65	0.66
Netherlands	0.76	0.60	0.89
Portugal	0.48	0.43	0.52
Spain	0.21	0.62	0.93
United Kingdom	0.48	0.53	0.65
Denmark	0.33	–0.07	0.82
Greece	0.65	0.36	0.89
Sweden	0.27	0.61	0.86

1. Refers to correlation coefficient of each country's GDP growth rate with that of the 11 participants in European Monetary Union. Correlations are based on semi-annual data.
2. The 1987-92 figure for Germany is affected by reunification.

Source: OECD Secretariat.

business cycles in euro area countries is generally high and has increased in recent years. Countries which have been in the exchange rate mechanism for longer have had more limited room to pursue a monetary policy independent of that in Germany, a factor that is likely to have contributed to this increasing correlation. These correlations may rise further over time, as the degree of trade and financial market integration continues to increase. But, a close degree of integration does not necessarily mean it is beneficial for a country in EMU. Closer integration may lead to greater output fluctuations, due to increased specialisation ("endogenous" specialisation) or as a consequence of lower area-wide inflation volatility (see below). In general terms, a monetary union is less susceptible to asymmetric disturbances the more its regions are integrated with each other and diversified within themselves. But the ultimate success of EMU also depends upon whether adjustment can take place without putting undue strain on economic activity. In general, a greater degree of labour and product market rigidity prolongs the adjustment process and leads to a bigger impact on output and employment in order to alter relative prices.

Endogenous specialisation or closer integration?

Krugman (1991*b* and 1993) has argued that closer integration could result in greater specialisation and, thus, greater vulnerability in regions of the monetary area to asymmetric shocks. Specialisation, he argues, has been limited by national obstacles to trade and high transportation costs. As the Single Market Process is fully implemented, technological innovations reduce these barriers and EMU makes prices more transparent, the incentive to reap scale economies and agglomeration benefits may rise and production could thus become more concentrated in the regions closest to the largest markets. Thus, EMU itself could lead to greater regional specialisation and heighten the area's exposure to asymmetric shocks.[69] On the other hand, a more integrated single market may enhance intra-industry trade and income convergence. In this case, vulnerability to asymmetric shocks is likely to fall and higher industrial diversification acts as a stabilising factor, which limits the economy-wide impact of sectoral disturbances.

Whether EMU is likely to spur greater regional specialisation or promote more homogenous production structures is an empirical question. A number of measures of industrial diversification can be constructed. One measure, similar to that suggested by Krugman, is to examine how closely individual country industrial structures compare with the average for the euro area. Based on (national accounts) sectoral output classifications, covering both manufacturing and services, Table 30 shows a summary measure of the degree of industrial divergence in the euro area. The measure compares the share of 8 economic sectors in GDP in each euro area country with the average for the euro area as a whole and then sums the absolute differences.[70] Intuitively, the measure shows the percentage of

GDP that has to be rearranged to give each country the average euro area industrial structure. Italy is the most "similar", with all economic sectors close to the euro area average. The industrial structure in Austria, France, and the Netherlands is broadly similar to the average, but in the other countries the differences can be quite sizeable. Belgium is the most consistently "dissimilar" country *vis-à-vis* the average. This primarily reflects the relatively low share of output in the Finance, Insurance and Real Estate Industry and the relatively high share in Community, Social and Personal Services. These results are somewhat surprising as they do not seem consistent with trends in intra-euro area intra-industry trade in manufactured goods which suggest a trend towards increased regional specialisation. In any case, the findings should also be treated with caution. The degree of specialisation is sensitive to the level of disaggregation chosen. Finer degrees of disaggregation will increase measures of specialisation and may alter the characterisation of trends over time.

Sizeable shifts in industrial structure are unlikely to emerge over a short time period. Shifts emerge slowly as tastes evolve, in response to technological innovations and policy measures (*e.g.* the gradual reduction of protectionist trade measures since the end of the second world war). Industrial structures may also change for secular reasons. A recent study (Kim, 1997) examined long run trends in regional specialisation for the United States, based on a similar industrial divergence index, but using employment shares rather than output. Kim found that regional specialisation increased between the nineteenth and the early twentieth centuries as the United States industrial structure shifted from agriculture to manufacturing, but then declined as services became increasingly more important. Within the major sectors, agricultural output has become increasingly specialised, manufacturing went through a phase of greater regional specialisation, but over the second half of this century, the trend reversed dramatically. In services, regional specialisation has been consistently low over the period examined. On balance, the correlation of economic cycles across regions increased and regional differences in land and resources became less important. Kim's results are consistent with the "new economic geography" models which predict a broadly "U-shaped" pattern of specialisation trends over long historical time periods.

The relative size of manufacturing sector output shares within the major euro area countries have converged since 1980 towards the area average. But a similar relative size of manufacturing in the euro area still leaves considerable room for specialisation. The example which Krugman frequently cites is the concentration of car production in the United States. Examining higher levels of industry disaggregation measured at the 2 and 3 digit level of aggregation within manufacturing would probably also reveal greater degrees of specialisation in the euro area. The implications for monetary policy, however, are limited, since

Table 30. **Output divergence in euro area countries**[1]

	1980	1985	1990	1995
Austria	18.1	17.5	18.6	20.9
Belgium	35.5	34.5	37.8	38.3
Finland	21.8	22.6	28.3	33.2
France	16.4	16.8	19.7	19.4
Germany	18.9	23.0	27.7	23.1
Italy	15.6	17.9	15.4	15.3
Luxembourg	15.3	30.8	25.0	33.3
Netherlands	22.5	19.9	17.3	19.7
Portugal	27.0	28.9	17.9	20.7
Spain	10.8	18.3	24.1	24.4

1. The output divergence index compares the share of GDP produced in 8 sectors in each euro area country (except Ireland) with the average of the euro area. The absolute differences are summed-up across the sectors.

$$\Sigma \mid GDP_{i,j}/\Sigma_i\, GDP_{i,j} - \Sigma_j\, GDP_{i,j}/\Sigma_i\Sigma_j\, GDP_{i,j} \mid$$

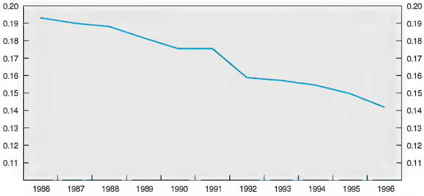
where i represents the sectors and j the countries. See Krugman (1991) for more details on the index. The results shown in the table are sensitive to the chosen level of aggregation. Divergences *vis-à-vis* the euro area are also likely to be larger than within integrated sub-regions of the euro area such as Belgium, Germany, France and the Netherlands.

Source: OECD Secretariat.

the impact of structural shocks in a narrow, highly specialised sector on overall economic activity falls as the level of disaggregation rises. National fiscal policy, however, may be appropriate particularly if the sector is large in terms of overall national economic output.

The Krugman specialisation measure shown in Table 30 above is based on comparisons across EU member States *vis-à-vis* the euro area average. Similar calculations have been compiled to examine the degree of specialisation across EU member States regions at the NUTs 1 level.[71] But because of data limitations the results are not strictly comparable. Specifically, the index is not based on the same output classification and is based on only three sectors: agriculture, manufacturing and services; and uses employment shares rather than output. The results show that on average regions within those member States participating in European monetary union from its inception have tended to become slightly less specialised over the past ten years (Figure 17). Overall, it is not possible to draw firm conclusions from these summary measures of specialisation as they do not show a clear cut trend and the level of specialisation depends critically on the level of aggregation.

Figure 17. **Euro area regional specialisation index**[1]



1. The regional specialisation index compares the share of employment in 3 sectors (agriculture, industry and services) in each euro area NUTS 1 regions with the average of the euro area and sums-up the absolute differences across the sectors.

$\Sigma \mid EMP_{i,j} / \Sigma_i EMP_{i,j} - \Sigma_j EMP_{i,j} / \Sigma_i \Sigma_j EMP_{i,j} \mid$ where i represents the sectors and j the countries.

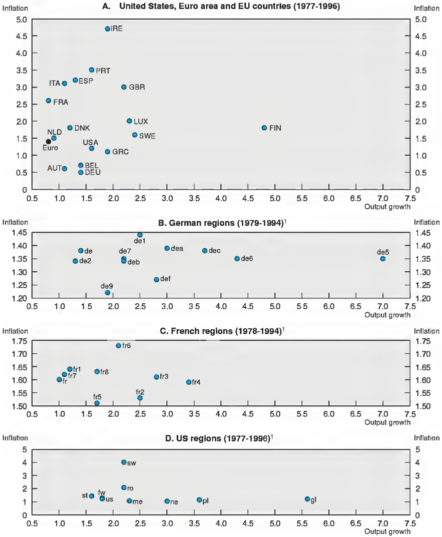
See Krugman (1991*b*) for more details on the index.

Source: OECD Secretariat.

Inflation and output volatility

The variance of inflation over time has historically been significantly greater than output growth variability in most EU countries. The lower variance of output growth partly reflects the contribution of nominal exchange rate adjustments and monetary policy in smoothing output fluctuations. A single monetary policy will limit the size of inflation variability between regions, but with the exchange rate option no longer available and structural differences that impinge on regions' flexibility to adjust, output volatility is likely to be higher at the regional level, unless relative prices adjust more rapidly than in the past. One approach to investigate how important this effect may be is to examine the relationship between the variance of output growth and inflation between regions in existing monetary unions. Figure 18, shows the trade-off in output growth and inflation volatility (measured by the coefficient of variation) in EU countries, the United States, the euro area as a whole and regions of France and Germany. At the aggregate level, euro area output variability is lower than in all of the member countries. The same is broadly so for inflation variability, apart from Belgium, Austria and Germany, which are closely grouped and have already been in a *de facto* monetary area for many years. A similar exercise for the United States,

Figure 18. **Trade-off between the variance of output growth and inflation**



A. United States, Euro area and EU countries (1977-1996)

B. German regions (1979-1994)[1]

C. French regions (1978-1994)[1]

D. US regions (1977-1996)[1]

1. See Annex 5 for the list of US, French and German regions.

Source: OECD Secretariat.

Germany and France at the regional level reveals that output volatility is much larger and variable across regions, whereas inflation volatility is similar within existing monetary unions (Figures 18, Panels B, C and D).[72] These results, bearing in mind the caveats about aggregation, suggest that the launch of monetary union on the 1st of January 1999 may change the relationship historically observed between inflation and output volatility in the euro area countries. As one would expect with a common monetary policy, inflation differences should be smaller, but output fluctuations could rise. If this were to occur, it could pose a major challenge to policymakers, as greater output volatility in the context of inflexible labour markets may lead to hysteresis effects and even greater output losses. It is not clear, however, to what extent these findings reflect a change in the underlying economic relationships, or whether they are simply a consequence of aggregation.

IV. Adaptability to shocks: the role of labour markets

This chapter examines the role of labour, and to a lesser extent, product markets, to respond to shocks and assesses how adjustment mechanisms could be sharpened to increase the chances of a successful monetary union. The United States is a useful benchmark for comparison, given its similar economic size and long experience with a single currency. Another approach is to judge the performance of European countries on their own and to examine how diverse regions within European countries have coped with regional asymmetric shocks. Both of these benchmarks are used in assessing how a successful monetary union can be forged.

Raising the adaptability to shocks

Euro area countries will undoubtedly continue to experience economic disturbances that affect a single country or subsets of regions. Such country or region specific supply and demand disturbances could be sources of tension within EMU unless they can be easily absorbed. As noted in Chapter III, the ideal response largely depends on the nature of the shock. When a real asymmetric (or common) shock is permanent the region (area) has no option other than to adjust. Ultimately, adjustment must come from real wages, reallocation of labour, output prices, or a combination of these. If labour markets cannot re-equilibrate, or only do so slowly, and product markets are sheltered from competitive forces, the adjustment process will be slow and have a bigger impact on employment and output. This would further reduce aggregate demand and lead to rising unemployment and public spending pressures. Furthermore, such transitory adjustment paths could become long lasting and translate into hysteresis of unemployment. Once structural unemployment has taken root, it tends to damage the capacity for further adjustments. It is, therefore, important to raise the economy's adaptability to shocks. This would help minimise the potential cost of a single currency, and is a desirable goal in itself, because it would also raise employment, lift productivity and output.

There are four main "shock absorber" mechanisms which can limit the potential cost of foregoing national monetary policy independence. These are more flexible factor and product markets, national fiscal policy and greater integration of capital and credit markets which would permit consumption smoothing. The potential for, and constraints of fiscal policy and private asset diversification to absorb shocks were discussed in Chapter II. The emphasis of this chapter, following the optimal currency area tradition, is on the flexibility of production factors, especially labour, to absorb shocks and the policies which may influence this adjustment channel.[73] There is also some discussion on the links between product and labour markets since they are closely interrelated. Labour market adjustment comprises both wage flexibility and labour mobility. Labour mobility in turn has two dimensions; geographic (or spatial) and non-spatial, proxied by job turnover, tenure and occupational mobility, which do not necessarily imply changing location.[74] Greater overall labour market flexibility would support job mobility and accelerate the pace of wage and price changes at the regional or country level in order to achieve real exchange rate corrections following an adverse shock. If these mechanisms are weak or slow, the necessary adjustments would fall more on employment.

High labour mobility, on the other hand, may conflict with other policy objectives, and concerns have been raised about the prospect of too rapid adjustment. Bean *et al.* (1998) argue that increased labour market integration could lead to jobs gravitating towards those states with the lowest social provision and protection (social dumping). In addition, most countries aim to promote regional development and limit rural urban migration and the loss of young, skilled and professional workers from depressed high unemployment areas. These pressures have led to calls for greater co-ordination of policies and the introduction of minimum standards to constrain national policies.

It should be observed, however, that in the European Union, micro policies are already strongly co-ordinated and indeed centralised to a large degree in areas concerning the single market, competition and trade policies (Box 3, Chapter II). Moreover, policies designed to promote regional development are not necessarily incompatible with a high degree of mobility. Investment in infrastructure designed to accelerate the pace of development or promote a more diversified economic base in deprived areas could complement a regions' ability to adapt following a general or localised economic shock. Indeed, EU structural funds and state aids, in part, are designed to help regions adjust without recourse to factors of production relocating. What is important is that such investments are based on an evaluation of the potential return. Allocating resources to investment projects which have the most promise not only strengthens the potential ability to adapt, but is also a factor that fosters overall economic growth and better labour market conditions (Visco, 1998). Based on these criteria, however, past experience suggests that few major regional development infrastructure projects have been successful.

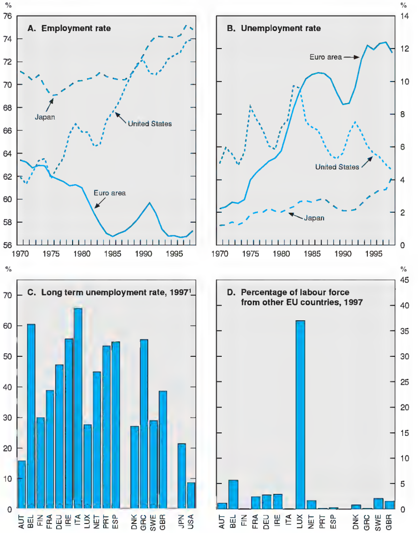
The case for further co-ordination of labour and product markets as well as tax and social policies in response to EMU is less clear-cut. On the one hand, co-ordination might strengthen the resolve by governments to proceed further with structural policy reforms. For instance, co-ordination of domestic policies that indirectly limit factor mobility, such as social assistance non-portability and poor qualification recognition (see below) are two areas which would usefully benefit from better cross country integration and improve EMU's overall shock absorption capacity. On the other hand, minimum standards could dampen the incentive that EMU provides to undertake vigorous labour market reforms and could result in even more fragmented labour markets. To the extent that EMU does lead to changes in institutional settings and structural policy, co-ordination could be appropriate since structural policy changes themselves may lead to asymmetric shocks which may be difficult to accommodate for individual countries.

This suggests that area-wide benefits may result from appropriate national structural policies which reduce labour and product market rigidities and is an argument in favour of some degree of co-operation in the framing of such policies. The Luxembourg and Cardiff Summits introduced frameworks that provide a forum for greater co-ordination of product and labour market policies at the European level.

Labour market performance

Euro area labour markets overall have performed poorly over the past couple of decades (Figure 19). Job creation in the private sector has been virtually non-existent and the employment rate has declined from an already relatively low level of 64 per cent in 1970 to around 57 per cent in 1998, despite a secular increase in female participation. The unemployment rate over the same period has risen almost six-fold to reach an area wide level of 11 per cent. In more than half the euro area countries the long-term unemployed (more than one year) account for the majority of unemployment and unemployment persistence is high. Clearly not all euro area economies have performed poorly, as suggested by the dispersion of country level unemployment and employment rates. Ireland and the Netherlands are two countries which have both experienced an increase in the employment rate – mostly in the private sector – and a reduction in structural unemployment over the last two decades, following reforms to social assistance, tax and labour market policies as well as overall wage moderation. An approximate indicator of labour market integration – and labour mobility – is the share of EU nationals from other EU countries in each country's labour force, which reveals that cross border migration is very low (Figure 19, Panel D). These

Figure 19. **Labour market performance**



1. Persons unemployed for one year or more as a percentage of total unemployment. 1996 for Austria, Germany and Luxembourg.

Source: OECD Secretariat.

observations suggest that the euro area labour market is not closely integrated and that institutional differences and labour market policies vary widely among euro area countries.

In contrast, the employment rate in the United States and Japan has risen since 1970 to close to 75 per cent and US unemployment, while cyclical, has been low on average at around 6½ per cent of the labour force. Unemployment in Japan has largely risen secularly, but at a far less dramatic rate than within the euro area. Such a stark, albeit cursory contrast in labour market performance between these regions over a long time period suggests that the differences are not cyclical, but structural. The following sections focus on the structural characteristics of euro area labour markets, with a particular emphasis on the obstacles to, and mechanisms and key features of labour market adjustment.

Labour market policy in the EU

In 1997 the Amsterdam Treaty introduced employment policy as a common title, set the scene for more co-ordinated labour market policies, strengthened surveillance measures of EU member State employment policies and provided a basis for greater peer pressure to spur labour market reforms (see Box 7). The main features of the new approach are the introduction of Employment Guidelines adopted by the European Council and National Action Plans prepared by member States which set out country specific employment policy plans consistent with the Employment Guidelines. The long-term objective is to raise the EU employment rate towards the level in Japan and the United States, as a high employment level is considered necessary to ensure the success of EMU (Broad Economic Policy Guidelines, 1998).

The overall EU approach to employment policy is similar to the OECD *Jobs Strategy* in that it stresses the importance of adopting a comprehensive plan and emphasises structural initiatives. The main features of the EU approach are the introduction of Employment Guidelines adopted by the European Council and National Action Plans prepared by member States which set out country-specific employment policy plans consistent with the Guidelines. Some areas of labour market policy receive more focus than others. For instance, training and retraining are stressed. Other aspects, such as wage flexibility, the rules governing eligibility and controls on job search or restrictive employment protection legislation, while receiving little emphasis in the Employment Guidelines are dealt with in the Broad Economic Policy Guidelines, which outline the overall economic policy strategy of the Union. Nonetheless, while many of the policy goals are alike, it is difficult to assess whether the policy prescriptions are similar, since the Employment Guidelines contain few specific proposals.

Box 7. Employment policy co-ordination at the EU level

The Rome Treaty conferred upon the Commission the task of promoting close co-operation between member States in matters relating to employment; labour law and working conditions; basic and advanced vocational training; social security; prevention of occupational accidents and diseases; occupational hygiene; and the right of association, and collective bargaining between employers and workers. While "Member States agree(d) upon the need to promote improved working conditions and an improved standard of living for workers, so as to make possible their harmonisation while the improvement is maintained" (Rome Treaty, 1957), the Commission's role was limited. Only limited decision-making power was given to the Council, and until 1989 few directives and regulations were issued. While the 1985 Single Act introduced the notion of "economic and social cohesion", the aim was largely to reduce income differences between regions, with the Community providing financial resources *via* the structural funds. However, the aim of one structural fund, the European Social Fund, is notably to combat long-term unemployment and to help the integration of young people. In 1989, a more comprehensive Social Charter complemented the Single Act, which prepared the granting of more competencies, and the Maastricht Treaty included an Agreement on Social Policy. Currently, some 70 directives and regulations are in effect. They largely cover mutual recognition of professional standards, working conditions, health and safety issues, workforce mobility, social security provisions for migrant workers and equal opportunities between women and men.

Employment policy co-ordination advanced with the 1997 Amsterdam Treaty. The Treaty – still to be ratified – declares that member States shall treat employment "as a matter of common concern, and shall co-ordinate their action". At the same time, the Council issued a Resolution which aimed at making the new provisions immediately effective, ahead of ratification. Although the main responsibility for deciding and implementing employment policies remains with the member States, the Amsterdam Treaty establishes a basis for a co-ordinated and common European employment strategy, and introduces promoting a high level of employment as an explicit goal of the Union.

The Amsterdam European Council announced an extraordinary Jobs Summit at the end of 1997 in Luxembourg, to develop and implement the co-ordinated employment strategy. The key elements include a yearly meeting of Heads of State and governments to evaluate the employment situation in Europe, based on a report prepared by the Council and the Commission. The Council then adopts, by qualified majority voting, Employment Guidelines for the member States after consultation with a variety of Community institutions. The Council also examines annually the implementation of the Guidelines and, if necessary, issues recommendations to member States. The second set of 22 Employment Guidelines for 1999, divided into four pillars covering employability, entrepreneurship, adaptability and equal opportunity were agreed upon at the Vienna European Council meeting.

As part of the European employment policy co-ordination process, member States are required to submit National Action Plans (NAPs), which outline each country's strategy for implementing the Employment Guidelines. The first NAPs were submitted to the Commission in April 1998. Policy commitments largely reflect specific member State's labour market weaknesses and strengths and build on existing

(continued on next page)

(continued)

national policy orientations, although a number of common features are also evident. These include strong emphasis on active labour market policies and on employability, especially through improving knowledge and skill levels, and entrepreneurship. Less emphasis is placed on the other two pillars. Despite the long-term goal to raise the employment rate, few NAPs include specific proposals or targets which could be used to evaluate performance.

The NAPs form an integral part of the Joint Employment Report that the Commission and the Council prepare for the European Council Summit at the end of each year. The report helps to facilitate the exchange of information and identify best practices and provides an opportunity to discuss how well member States have followed up their commitments, their effectiveness, and progress in attaining the objectives of the Guidelines as well as agreeing on new Guidelines.

Overcoming obstacles to labour mobility and wage flexibility

As already noted, in the context of EMU, regional labour market responses to asymmetric shocks are particularly important. Policies which facilitate or lower obstacles to geographic labour mobility and enhance the effectiveness of regional wage flexibility to quickly restore equilibrium in local labour markets are key requirements that take on added importance within a monetary union. Some aspects of employment policy that are pertinent in the context of EMU are not directly or extensively featured in the *Jobs Study* recommendations or European Employment Guidelines, notably the obstacles and incentives to labour mobility, although the common emphasis on active labour market policies and training and education may indirectly assist mobility.[75] The remainder of this chapter assesses the existing scope for labour markets in the euro area to adjust and the policy requirements to strengthen this capacity. The main emphasis is on labour mobility, since considerable work in the OECD *Jobs Study* and subsequent follow-ups, have already investigated wage flexibility in great depth.

Geographic labour mobility remains low

The literature on optimal currency areas has emphasised the role of labour mobility as an adjustment mechanism (Mundell, 1961). Labour mobility is important when shocks are permanent and structural, since adjustment inevitably requires a reallocation of production factors.[76] When a shock is policy-induced or transitory, it is less likely that migration will have a large influence on the adjustment path, and it may run counter to stabilising output fluctuations. Since migration is not reversible, without incurring significant transactions costs, the role that migration can play in terms of substituting for the nominal exchange rate when confronted by an asymmetric temporary economic shock is limited. Nonetheless, mobility helps accelerate the adjustment process and promotes a more even distribution of regional incomes, wages and unemployment. The faster adjustment occurs the lower is the likelihood that unemployment will emerge even in an environment of perpetual structural change. Regional immobility raises the structural rate of unemployment by increasing geographic mismatch between workers and jobs.

Furthermore, migration can raise regional, and by implication overall potential growth. In conventional growth models, labour supply is fixed and the returns to capital are diminishing. Output growth, therefore, leads to rising real wages and depresses the return to capital. Migration relaxes the labour supply constraint and if mobility is responsive to wage differentials, limits (and possibly reverses) the falling return to capital. In this case, high productivity regions can grow faster without stoking inflationary pressures. It is plausible that the prolonged period of rapid growth with low inflation in France and Germany during the 1960s and earlier, has been partly associated with the high rates of inward migration over this period.

Institutional arrangements

Freedom of movement for persons is one of the four basic freedoms granted by the Rome Treaty (Article 3c), and is a cornerstone of the single market.[77] Articles 48 and 49 of the Rome Treaty grant every citizen of the European Union the right to enter, move and reside in another member State and prohibit discrimination based on nationality with regard to access to the labour market. Nationals of third countries, however, have no automatic right to move freely, reside and work within the Community.[78] Moreover, member States reserve the possibility of excluding jobs, which involve the exercise of sovereignty from the principle of equal treatment. The legal apparatus giving effect and governing this freedom has been in place since 1968 (EC Regulation 1612/68 and Directive 360/68). Initially the right of movement was associated with the right to work, or look for work, in another member State. The European Court of Justice, through its case law, has not only repeatedly upheld this freedom of movement, but also lowered obstacles that may have a deterrent effect on free movement and broadened its interpretation to include the right of residence for students, pensioners and vacationers. The Maastricht Treaty formalised the wider interpretation (Article 8*a1*) by establishing the notion of a European citizen and recognising the right of all Union citizens (defined as nationals of a member State) to entry and residence, regardless of labour market status.

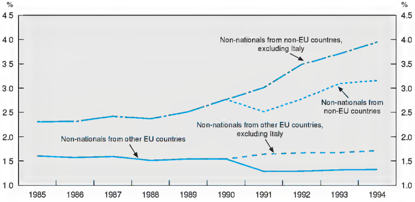
To what extent do EU citizens move?

Even though every citizen of the Union has the right to freedom of movement to work or reside in another member State, very few people chose to do so. The number of EU nationals resident in another member State is only 5.5 million out of 370 million, equivalent to 1½ per cent of the population (Figure 20). This proportion has remained broadly constant over the past decade but despite the gradual removal of legal barriers to intra EU labour migration, is lower than during the 1950s and 1960s when some 10 million people migrated mostly from Southern to Northern Europe. The oil price shock in 1973 and subsequent policy response led to slower output growth, rising unemployment and more restrictive immigration policies.[79] On the other hand, and even with much more stringent migration laws, the proportion of non-nationals from countries other than the European Union has risen steadily over the same period. Currently, there are almost twice as many non-EU nationals resident in the Union than EU nationals living in another member State.

Most non-national residents are of working age and in the labour force. Thus, the proportion of foreigners in the workforce is considerably higher than the proportion in the overall population. The relative shares among countries vary considerably. In France, Germany and Austria more than 5 per cent of the

Figure 20. **Non-nationals in the euro area**[1]

Proportion of non-nationals from other european and non-european countries



1. Belgium, Germany, Spain, Ireland, Netherlands, Portugal, Finland and Italy (from 1991). Data expressed as a proportion of euro area population.

Source: Eurostat, Migration Statistics 1996.

workforce are foreigners. In Luxembourg, the proportion is over 50 per cent, reflecting its small size and relatively high salaries, which attract workers from neighbouring countries, and the location of several international organisations in Luxembourg. In all other euro area countries, the proportion is 3 per cent or less. The average euro area share is low in comparison with other OECD economies. A quarter of Australia's workforce is foreign born and almost a fifth in Canada. In the United States it is around 10 per cent. These much higher levels reflect the large legal immigration programmes, particularly during the 1950s and 1960s (Table 31).

Table 31. **Net immigration in OECD countries**

Average annual net immigration as a share of population in per cent

	1956-60	1961-70	1971-80	1981-90	1991-96
Euro area countries					
Austria	n.a.	0.10	0.10	0.15	0.64[3]
Belgium	0.10	0.16	0.11	0.01	0.20[3]
Finland	–0.17	–0.39	–0.06	0.09	0.14
France	0.36	0.46	0.11	0.10	0.16[1]
Germany	0.58	0.50	0.26	0.45	0.63[4]
Ireland	–1.45	–0.51	0.33	–0.59	–0.14[3]
Italy	–0.21	–0.22	n.a.	n.a.	0.22[3]
Luxembourg	0.19	0.47	0.76	0.41	1.03
Netherlands	–0.07	0.11	0.25	0.18	0.25
Portugal	–0.47	–1.28	0.39	–0.30	0.02
Spain	–0.40	–0.16	0.00	0.00	0.09
EU "outs"					
Denmark	–0.10	0.06	0.05	0.09	0.28
Greece	–0.31	–0.39	n.a.	n.a.	0.62[4]
Sweden	0.14	0.30	0.11	0.20	0.43
United Kingdom	0.06	–0.01	–0.04	0.05	0.17[2]
Other OECD countries					
Australia	0.80	0.75	0.47	0.67	0.41
Canada	1.96	1.36	0.83	0.76	0.63
Czech Republic	n.a.	n.a.	n.a.	–0.03	0.08
Iceland	n.a.	–0.23	–0.20	0.01	–0.08
Japan	–0.02	–0.00	–0.01	–0.01	–0.02[4]
New Zealand	0.38	0.31	0.12	n.a.	0.39
Norway	n.a.	n.a.	0.11	0.13	0.24[2]
Poland	n.a.	n.a.	n.a.	–0.07	–0.04
Switzerland	0.85	0.59	–0.14	0.38	0.50
Turkey	n.a.	n.a.	n.a.	0.29	0.15
United States	0.18	0.20	0.20	0.21	0.32

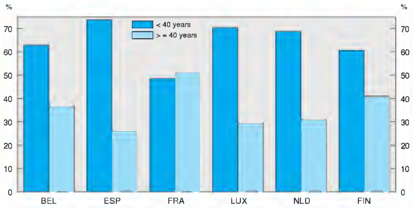
1. 1991-92.
2. 1991-93.
3. 1991-94.
4. 1991-95.

Source: OECD, *Labour Force Statistics.*

International labour mobility is highest among professionals and specific types of workers where language skills are relatively less important, such as the building, hotel and catering trades. Younger workers are also more likely to move. Apart from France, in all euro area countries, where data are available, about 60 per cent of EU nationals resident in other member States are aged under 40 years (Figure 21). The lower proportion in France largely reflects ageing among earlier large inflows of migrants.

Migration between EU and non-EU countries is an extreme and unlikely response to economic shocks in the euro area. Such migration flows are motivated by other factors and are usually permanent. Even the tendency to seek employment in other euro area countries is small, apart from those workers located close to national borders. Labour market adjustment through geographic mobility to local economic disturbances is likely to be more significant at the national, rather than international level. Intra country job related moves do not face obstacles, to the same extent, posed by different tax regimes, language skills, schooling systems and family and culture barriers. Nonetheless, intra country migration is low in most euro area countries. Among those countries where regional migration statistics are available, immigration and emigration rates (at the NUTS 1 level) average about 0.5 per cent of the regional population in Italy and Spain. Moreover, migration rates in Italy have declined since the early 1980s, largely as a

Figure 21. **EU nationals in other member states by age**[1]



1. Expressed as a proportion of the total number of other euro area nationals.
Source: Eurostat, Migration Statistics 1996.

result of higher transfers to the South and enforced real wage convergence regardless of productivity level differences (Padoa-Schioppa, 1991 and Faini, 1996). The Netherlands and Germany, are at the other end of the spectrum, with migration rates almost three times higher, but nonetheless, still considerably lower than rates for the United States and Australia. In Australia, some 2¼ per cent of the labour force moves interstate each year. And among the unemployed, almost 7 per cent move interstate in search of work.[80] For the United States, over 2.5 per cent of the working-age population and just under 5 per cent of the unemployed changes State of residence each year. The United Kingdom is the only European country where migration rates have risen, albeit slightly, over the period. On average, almost 3.5 per cent of the population move each year to another region. Relatively high regional migration is considered to be one of the factors which explains progress in reducing unemployment dispersion (McCormick, 1997).

Non spatial mobility

The above discussion outlines the main features and patterns concerning geographic labour mobility. But labour mobility may be important without large scale migration of labour, if job mobility is high. One, albeit imperfect, measure of job mobility is employment tenure (Table 32). Based on this measure, job mobility is higher in Anglo Saxon countries, compared with continental European economies and is largely related to voluntary quits, rather than layoffs (OECD *Jobs Study*, 1994). High voluntary labour turnover sustains a higher flow of vacancies, which facilitates a better match between workers and employers and makes it easier for firms in difficulty to downsize through attrition. Median job tenure is low in Australia and the United States at 3.4 and 4.2 years respectively. In contrast, median tenure in continental European countries is 7.3 years and over ten years in Germany. Another indicator of job mobility is labour turnover measured by the proportion of employees whose job tenure is between one and two years.[81] The average of this measure in euro area countries implies lower mobility than in most of the EU "outs" and non-European OECD countries.[82]

Inter-industry mobility is of particular relevance when the structure of the economy is changing. If there are sizeable flows of labour between industries, adjustment may be more easily accomplished. An EU study (European Commission, 1994) examined the rate of movement among the employed between industrial sectors during the period 1984 to 1992. The results suggest inter-industry mobility was lowest in Belgium, Germany, Greece and Ireland and highest in the United Kingdom. A UK study (Beatson, 1995) found that almost 50 per cent of all job moves (around one million) involved a change of industry.[83] Inter-industry job moves are concentrated in parts of manufacturing (mineral extraction and manufacturing other than metal and engineering goods) and services (banking, finance, hotels, distribution and catering), but are low in the public sector.

Table 32. **Measures of job mobility**

1995

	Average tenure (years)	Median tenure (years)	Between 1 and 2 year tenure (percentage of total employment)	Short-term employment turnover[1]
Euro area countries				
Austria	10.0	6.9	8.9	29.5
Germany	9.7	10.7	9.4	31.4
Netherlands	8.7	5.5	11.4	26.1
Belgium	11.2	8.4	7.7	28.4
Luxembourg	10.2	7.2	8.6	20.0
Portugal	11.0	7.7	9.0	36.4
Spain	8.9	4.6	4.9	85.1
Italy	11.6	8.9	6.0	45.9
France	10.5	7.7	8.0	41.6
Ireland	8.7	5.3	11.0	30.4
Finland	10.5	7.8	6.2	58.0
Unweighted euro countries, average	10.1	7.3	8.3	. .
EU "outs"				
United Kingdom	7.8	5.0	10.7	41.2
Denmark	7.9	4.4	11.4	51.2
Sweden	10.5	7.8	7.4	50.1
Greece	9.9	7.5	8.4	30.7
Unweighted EU "outs", average	9.0	6.2	9.5	
Other OECD				
United States	7.4	4.2	8.5	65.9
Canada	7.9	5.9	10.3	53.0
Japan	11.3	8.3	. .	. .
Australia	6.4	3.4	12.6	49.7
Unweighted other OECD, average	8.3	5.5	10.5	43.0

1. Defined as separation rate between 1 to 2 years tenure. The rate is calculated as the difference between the number employed with tenure less than 1 year in 1994, less the number with 1 and 2 years tenure in 1995 expressed as a percentage of the source population.

Source: OECD (1997c), *Employment Outlook.*

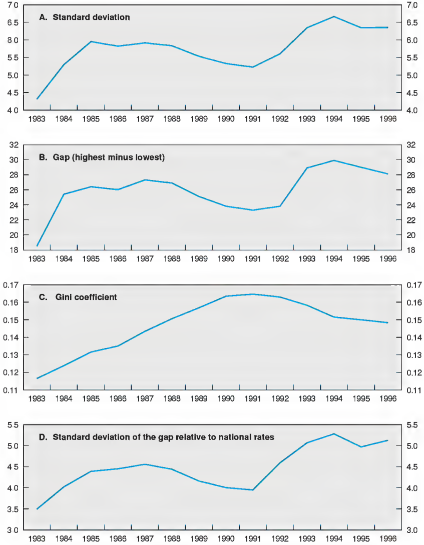
Flows into and out of unemployment provide another imperfect measure of mobility. On this basis the data is more clear cut, with higher mobility in the United States, Canada and Australia, compared with the euro area countries. An OECD report (1993) compared unemployment inflow and outflow rates across countries. In most countries, inflow rates increased between 1979 and 1990, and outflow rates decreased, implying a rise in overall unemployment. But, inflow rates in the United States and Canada are more than twice the level in euro area countries and outflow rates are also higher. Outflows (expressed as a percentage of total unemployment) in the major European economies averaged less than 10 per cent in 1990, which lies behind the high proportion of long-term unemployed in these countries.

Mobility and labour market dynamics

Examining trends in the dispersion of unemployment within existing monetary unions can provide some insights into the incidence of regional shocks and the speed of adjustment to them. In the United States and Australia, where regional migration is relatively high, the dispersion (standard deviation) of unemployment is around 1½ percentage points and no secular rise in US unemployment is observed. In Canada, unemployment dispersion has been relatively high, but steady for many years. In contrast, in most euro area countries, regional unemployment dispersion has widened along with the rise in unemployment. Most standard measures of dispersion show a widening across regions within the euro area since the early 1980s (Figure 22).[84] The standard deviation is 6¼ percentage points and has risen by 2 percentage points, the gap between the region with the highest and lowest unemployment rate has increased from 18.5 percentage points in 1983, to over 28 percentage points in 1996 and the gini coefficient has risen, although over the past five years it has edged down slightly. Within countries, Italy and Spain have experienced the largest widening, but even abstracting from these countries, dispersion in the euro area has increased. Not only is the dispersion of unemployment high in euro regions, it is also more persistent; regions with high unemployment tend to remain so over time. Correlation coefficients between regional unemployment in 1996 and ten years earlier are high and significant in the euro area. In contrast, the correlation for regions of the United States, is lower (Figure 23). Higher migration rates and wage flexibility in the United States may plausibly explain its capacity to reduce regional unemployment rate differentials relatively rapidly.

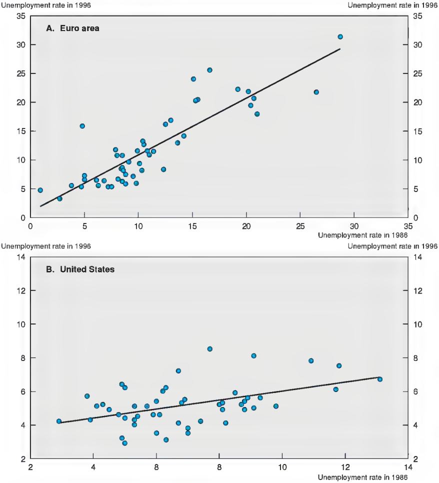
The higher dispersion and persistence of unemployment rates in Europe may arise because sector specific shocks are more frequent than in the United States. If this is the case, one would expect larger dispersion, and labour mobility in Europe may actually be very high, even though observed movements are low. But it could also be associated with a lower propensity of workers to migrate away from regions with high unemployment and poor labour market conditions. The apparent stability of regional unemployment differentials may reflect non pecuniary differences between regions, such as a better climate, lifestyle or a cleaner environment, which make them more attractive at any given unemployment rate.[85] Disentangling cause and effect requires more sophisticated techniques. Two approaches have been investigated. The first is to examine the responsiveness of migration flows to labour market variables, such as employment, activity

Figure 22. **Measures of regional unemployment dispersion in the euro area**



Source: OECD Secretariat.

Figure 23. **Regional unemployment rate persistence**



The equation of the regression line for the euro area is:
Unemployment rate in 1996 = 1.03 + 0.98 x Unemployment rate in 1986
Adj. $R^2 = 0.75$ T: (1.03) (12.29)

The equation of the regression line for the United States is:
Unemployment rate in 1996 = 3.35 + 0.27 x Unemployment rate in 1986
Adj. $R^2 = 0.21$ T: (6.51) (3.80)

Source: OECD Secretariat.

rates and unemployment. The second is to synthesise the vast empirical literature which assesses the determinants and magnitude of variables influencing the decision to migrate.

Statistical measures of the relationship between migration and regional labour market variables, suggest that geographic labour mobility is limited as an equilibrating mechanism in the euro area. The correlation between unemployment and migration rates over five and ten year periods is insignificant in virtually all euro area regions. Moreover, the expected negative sign between unemployment and immigration is not always observed and is sensitive to the period chosen. Similarly, there is no consistent pattern between regional employment growth and net migration flows. On the other hand, the correlation over time between regional unemployment rates and activity rates is negative in most regions of Germany, the Netherlands and the United Kingdom. No such pattern is evident for the regions of Spain and Italy. But the correlations across regions between activity and unemployment are virtually always negative and significant. This suggests that part of the adjustment to local labour market shocks occurs through lower participation, rather than movement to those regions with better labour market prospects.

The above discussion suggests that labour mobility plays a relatively important role in existing currency areas like the United States and Australia, compared with the euro area, in response to factors that affect employment. In contrast, adjustment in Europe appears to be manifest in terms of changes in the activity and unemployment rate. An empirical framework first used and developed by Blanchard and Katz (1992), permits a richer analysis of the actual dynamics of labour adjustment.[86] Obstfeld and Peri (1998) have applied this technique to three of the major European economies (Italy, Germany and the United Kingdom) and Canada, as well as updating Blanchard and Katz's results for the United States. Likewise, Debelle and Vickery (1998), have researched Australian labour market dynamics. The results support the view that labour market adjustment is more rapid (lower persistence) in the non-euro area countries and that migration plays a relatively more important role in that adjustment (Table 33). Within five years the employment rate has returned to its steady state in all the countries shown, except in Italy and Germany, where adjustment is only about half complete. In these countries, the participation rate accounts for most of the adjustment and is persistent. This may reflect permanent exiting from the labour force as redundant workers opt for early retirement or move onto substitute benefits not conditional on job search. The United Kingdom and Australia, as well have a large initial participation rate change, but this dissipates as the migratory response builds. In the United States, migration flows absorb about a third of the shock in the first year, with further increases in the long run.[87]

Table 33. **Impulse response profiles for a Blanchard-Katz regional labour-demand shock**[1]

	Variable	First year	Five years	Ten years	Fifteen years
Italy	Employment	1.00	0.69	0.55	0.45
	Employment rate	0.23	0.12	0.07	0.04
	Participation rate	0.56	0.36	0.24	0.15
	Migration	0.22	0.21	0.24	0.27
Germany	Employment	1.00	1.03	0.57	0.17
	Employment rate	0.28	0.49	0.10	–0.02
	Participation rate	0.61	0.23	0.34	0.20
	Migration	0.11	0.31	0.13	–0.01
United Kingdom	Employment	1.00	0.63	0.37	0.36
	Employment rate	0.11	0.04	–0.04	–0.02
	Participation rate	0.85	0.42	0.14	0.04
	Migration	0.04	0.17	0.28	0.33
Canada	Employment	1.00	0.63	0.37	0.34
	Employment rate	0.46	–0.05	–0.12	–0.08
	Participation rate	0.43	0.25	0.12	0.09
	Migration	0.11	0.43	0.37	0.32
United States	Employment	1.00	0.74	0.44	0.48
	Employment rate	0.24	–0.01	–0.03	0.00
	Participation rate	0.43	0.16	–0.02	–0.01
	Migration	0.33	0.59	0.49	0.49
Australia[2, 3]	Employment	1.00	0.32	0.18	0.22
	Employment rate	0.24	0.03	0.03	–0.01
	Participation rate	0.71	0.14	–0.03	–0.01
	Migration	0.05	0.15	0.19	0.20

1. Units are percentage points. The variable is based on the formula:

$$\dot{E} = \frac{\Delta E}{LF} + \frac{\Delta LF}{POP} + \frac{\Delta POP}{POP}$$ where E represents employment, LF the labour force and POP the working age population.

The German estimates are based on western Germany, excluding Berlin. Migration, participation rate, and employment rate may not sum to employment because of rounding.

2. Based on Debelle and Vickery (1998) using the Blanchard and Katz approach.
3. The impulse response profiles for Australia are not strictly comparable because they impose, by construction, the participation and unemployment rates returning to their base levels and the profiles are measured in terms of quarters rather than years.

Source: Obstfeld and Peri (1998) and Debelle and Vickery (1998).

Other studies, summarised in Table 34, also find large negative initial participation rate effects among European economies and regions (Decressin and Fatas, 1995 and McCormick, 1997). The role which regional real wages have in terms of labour market adjustment is less equivocal, but this is to be expected. The relationship between real wages and migration is ambiguous; a lower real wage can increase labour demand, reducing unemployment and the incentive to

Table 34. **Studies on labour market adjustment to economic shocks**

Author(s)	Research topic	Area researched	Method	Major findings
Debelle and Vickery (1998)	Role and speed of interstate migration in reducing difference in labour market conditions between states and in mitigating the employment effects of state specific shocks.	Australian States 1979 to 1997	Summary statistics, cointegration tests of state unemployment with national rate and OLS regression.	Interstate migration plays an important role in reducing differences in labour market conditions, but adjustment is slow (> 7 years) and differences between states remain. Movements in relative wages have not been an important part of the adjustment process.
Blanchard and Katz (1992)	Role of wages, local labour market conditions and interstate migration in response to state specific labour demand shocks.	US States 1950 to 1990	Time series regression analysis	Labour migration plays a major role in reducing interstate unemployment differentials. Regional nominal wages fall, but the regional (CPI-based) real wage barely changes since house prices tend to fall.
Decressin and Fatas (1995)	Nature of regional labour market dynamics in response to region specific shocks.	European regions and US States	Time series regression analysis	Labour mobility plays a small role in adjustment of European labour markets to region specific shocks. Most adjustment is through changes in the participation rate, whereas in the United States, adjustment is reflected in migration. In both areas, the unemployment rate plays a small role in mobility likelihood. Greater asymmetry of shocks in Europe than the United States.
McCormick (1997)	Relationship between regional unemployment and labour mobility	UK regions	Evaluation of summary statistics and literature survey	Labour demand shocks influence net migration of non-manual workers. Higher vacancies and rising relative real wages in the growing region stimulate in migration. But rising real house prices may encourage out migration. Manual workers are less geographically mobile. Neither migration or significant fluctuations in relative wages play a major role in adjusting to depressed labour market conditions, rather labour force participation rates decline.

Table 34. **Studies on labour market adjustment to economic shocks** *(cont.)*

Author(s)	Research topic	Area researched	Method	Major findings
OECD (1990)	Size and importance of migration flows between regions within countries. Role of earnings adjustment in local labour markets.	OECD countries	Summary statistical analysis	Regions with above average unemployment tend to experience low earnings. Weak negative relationship between changes in earnings and changes in unemployment rates. Tendency for migration out of high unemployment regions and inflows to low unemployment regions.
Bentolila and Dolado (1991)	Labour market dynamics and regional adjustment.	Spanish regions 1964 to 1986	Time series analysis	Unemployment differentials induce a small migratory response and responsiveness has fallen. The effect of relative wages on migration is even smaller.
Hughes and McCormick (1993)	The relationship between migration destination choice, personal characteristics and labour market conditions.	UK regions	Pooled cross section. 1981 and 1983 to 1986	Relative regional wage rates matter, but not unemployment or vacancy rates in adjusting to adverse shocks. Non manual labour is more likely to move than manual labour from high unemployment regions. Migration is unlikely to correct regional imbalances if regional relative wage rates do not change, but will contribute if relative wage rates are flexible.

Source: OECD Secretariat.

migrate, but may also increase the incentive to seek higher paid employment and migrate. Compositional effects or high relative wages spurring firms to relocate to low wage areas may also induce a counter-intuitive relationship. While not finding a counter-intuitive relationship, Bentolila and Dolado (1991) for Spanish regions, McCormick (1997) for UK regions, and Debelle and Vickery (1998) for Australian states find that relative wages have not been an important part of the adjustment process.[88] On the other hand, several analyses do find a significant relationship. An earlier study by McCormick (1993) noted that labour mobility assisted the adjustment path only to the extent that relative wages were flexible. And Eichengreen (1993) estimates that the migration rate is about three times greater, and the elasticity of migration with respect to wage differentials is at least five times higher, in the United States than in the United Kingdom or Italy. Blanchflower and Oswald (1994) examine the existence of a "wage curve" – the relationship between regional unemployment and regional wages – in OECD countries. They find a significant negative relationship in all countries examined, except Italy, between the wage level in a region and the regional unemployment rate. Moreover, the size of the elasticity in European countries is broadly the same as in the United States and Canada.[89] Taken together, these results suggest that local wage changes do play a role in the adjustment process. It is important, therefore, that obstacles to local wage corrections, such as non-region specific minimum wages and housing policies (see below), do not frustrate adjustment channels and result in larger output and employment volatility.

If labour were perfectly mobile across regions, one would expect low unemployment rate dispersion. This is more likely the closer regional labour markets are integrated. In practice, however, persistent unemployment differentials may simply reflect different local structural unemployment rates, which result from differentiated impacts from national minimum wages, replacement rates, lack of information about job opportunities in other regions, lifestyle and housing market differences offsetting wage differentials and a limited geographic range for job search requirements without risking the loss of unemployment benefit entitlement. Moreover, De Grauwe and Vanhaverbeke (1993) have argued that differences in regional institutions, such as less strict job search requirements and ineffective public employment services, may not only increase the local natural unemployment rate, but may also attract population into high unemployment areas.

If wide and persistent regional unemployment differentials in euro area countries were associated with a greater tendency for local asymmetric shocks, rather than low labour mobility compared with other countries like the United States, Australia and Canada, one would expect a weak relationship between regional and national unemployment rates. A simple test is to regress regional unemployment rates against the national rate. The results suggest that more than three quarters of the variation in regional unemployment is explained by movements in national unemployment.[90] Moreover, in most regions of France, the Netherlands, Belgium and the United Kingdom, the coefficient is not statistically significantly different from 1, implying that regional unemployment is driven by national developments, rather than region specific factors. In Italy, however, variations in national unemployment have a twice as large impact on unemployment in the south. This suggests that policies which first focus directly on reducing structural unemployment in the south are likely to be more effective than policies which aim to strengthen labour mobility. Moreover, to the extent that policies which aim to lower structural unemployment also reduce economic disincentives to relocate, labour mobility may indirectly increase.

Economic determinants of and obstacles to labour market adjustment

Explaining the secular decline in international and intra-country migration, as well as the differences across countries in the relative role of migration in labour market adjustment is not straightforward. A multitude of factors are relevant. These relate to labour market institutions, for example, the strictness of employment protection legislation and policies, such as unemployment replacement rates or minimum wages. The economic incentives to move also differ. Wage dispersion and housing markets, for instance, are likely to play a part and the increase in female labour force participation may have made it harder for two income earner households to relocate. Ideally, one would want to put a money metric on all the incentives and disincentives to migrate, but in practice this is impossible to do. Nonetheless, some insights into how significant these factors are likely to be, as well as the barriers to labour mobility can be gleaned from the vast literature on the determinants of geographic mobility.

The studies reported in Table 35 examine the relative role of economic and social variables and their interaction on the likelihood of migrating. Most studies find that the probability of moving is not, or only very weakly, responsive to relative unemployment rates and labour market variables, especially in European countries and regions (Jackman and Savouri, 1992; Neven and Gouyette, 1994; Hughes and McCormick, 1993; and Bentolila and Dolado, 1991). Moreover, higher overall unemployment reduces the chances of moving (Bentolila, 1997; and Pissarides and Wadsworth, 1989). This suggests that the prolonged period of weak labour market opportunities and the secular rise in unemployment since the early 1970s have contributed to the fall in migration rates since the 1960s.

Furthermore, economic catch-up with the more advanced economies has narrowed the gap between wages and income per capita across European Union member States and thereby lowered the incentive to migrate (Bentolila, 1997). The gap in GDP per capita between the richest (Luxembourg) and poorest (Portugal) euro area country on average during the 1960s differed by a factor of 3.

Table 35. **Studies on determinants of geographic mobility**

Author(s)	Research topic	Area researched	Method	Major findings
Antolin and Bover (1993)	Role played by personal characteristics, unemployment, wage and house price differentials on migration	Spanish regions 1987 to 1991	Pooled cross section, logit and probit regressions	Owner occupied housing, living with relations and double income households, reduce probability of migration. Higher probability among younger and more educated workers. Construction workers are the most mobile. Job tenure lowers migration. Differentials in unemployment rates, real wages, house prices, and participation growth influence migration decisions when interacting with personal characteristics. Non registered unemployed have a higher tendency to move than those who are registered.
Pissarides and Wadsworth (1989)	Relationship between unemployment and inter-regional labour migration	UK regions 1976 and 1983	Logit regressions	Personal characteristics matter. Being unemployed increases the likelihood of moving and living in council accommodation impedes it. Regional unemployment differentials do not have a significant impact on the chance of moving, but do when regions also have relatively low wages and vacancy rates. Higher overall unemployment rates reduce migration propensities.
Bentolila (1997)	Factors underlying falling and changing patterns of Spanish regional labour migration.	Spanish regions 1962 to 1994	Evaluation of summary statistics and indicators	Falling migration between Spanish regions due to increase in national unemployment rate and a reduction in regional dispersion of other economic variables, such as wages and GDP per capita. Other important factors were higher and broader unemployment insurance coverage and social protection expenditures.

Table 35. **Studies on determinants of geographic mobility** *(cont.)*

Author(s)	Research topic	Area researched	Method	Major findings
Faini *et al.* (1997)	Causes of falling and low mobility in Italy	Italian regions	Multinomial logit model	Low mobility due to inefficiencies in the interregional job matching process and high mobility costs. Mobility costs linked to high housing purchase taxation and rent controls. Households with an unemployed head or with a small income potential are less mobile.
Hughes and McCormick (1981)	Relationship between housing policies and geographic labour mobility.	UK regions	Logit model	Private renters are more likely to move than owner occupiers, due to high transaction costs buying and selling a house. Council tenants have the lowest tendency to migrate.
Jackman and Savouri (1992)	Causes of regional migration.	UK regions 1975 to 1989	Aggregate and pooled cross section time series	High unemployment and low vacancy rates are significant factors influencing out migration, but they have a small impact. High relative house prices encourages out migration and discourages in migration and a large local public housing stock reduces in migration due to allocation policies favouring local residents.
Kilpatrick and Felmingham (1996)	Does labour mobility vary across regions and if so, why? Inter-industry mobility.	Australian regions. 1989 and 1992	Maximum likelihood regression analysis	Faster growing regions attract in-migration. Mobility slows with economic downturns and with job tenure, especially males. Likelihood of mobility is not affected by education levels or occupation.
Osberg *et al.* (1994)	The relative roles of inter-industry and inter-region mobility as margins for adjustment.	Canadian provinces	Bivariate probit model	Inter-industry labour mobility and inter-regional migration are simultaneously determined processes. Wage differentials are significant but small influence on likelihood of movement. Transfer payments do not lower likelihood of movement. Inter-industry mobility is much larger in magnitude than inter-regional migration.

Table 35. **Studies on determinants of geographic mobility** *(cont.)*

Author(s)	Research topic	Area researched	Method	Major findings
Neven and Gouyette (1994)	Role of relative unemployment and wage levels as determinants of bilateral gross emigration rates.	European Union regions 1985	Cross section model	Relative unemployment rates do not have a big impact on migration decisions, but relative wages do. Southern regions respond more slowly to wage and unemployment differentials than in the north.
Thomas (1993)	Influences on the choice of destination region of migrants.	UK regions	Pooled logit model 1984 to 1986	Housing market conditions do not appear to influence the decisions of workers who move for job reasons, but does for other migrants. For those already working, the decision to move depends heavily on relative wages, whereas for the non-active house prices influence the choice of destination. People who move, prefer the least distance possible.

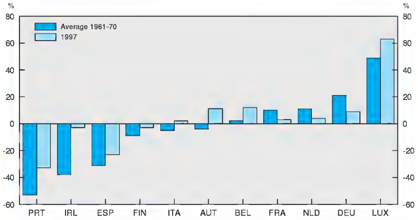
Source: OECD Secretariat.

Spain and Ireland, compared with the euro area average also had low incomes, whereas Germany, France and the Netherlands were well above average over this period. Given such a wide differential, it was not surprising that south north labour migration was significant during the 1960s (Figure 24). By the 1990s, however, dispersion in GDP per capita among euro area countries was much reduced. While Portugal still has the lowest income level, it is now more than two thirds the euro area average and in Ireland it is close to the average.

The combination of labour market and household characteristics typically reveals that some categories of worker are more mobile than others. For example, younger, better educated and those living in rented properties, are more likely to move when unemployed, than double income households and home owners (Antolin and Bover, 1993). Indeed, housing policies and housing tenure are key factors influencing the propensity to move. Owner occupiers and council housing tenants have the lowest tendency to move, due to high transactions costs buying and selling a house, rent controls which limit availability and council housing allocation policies, which grant low cost housing based on length of residence in the region (Hughes and McCormick, 1981; Faini, Jackman and Savouri, 1997). Transactions costs associated with buying and selling a property are sizeable in

Figure 24. **GDP per capita catch-up in the euro area countries**[1]

Current market prices and PPPs



1. Gap between country GDP per capita and that for the euro area average, which is calibrated to equal 100.

Source: Eurostat.

all countries, but they are considerably higher in some EU countries compared with the United States, largely because of stamp duty and VAT. In Belgium and France, for example, stamp duties are close to 10 per cent of the average property value, whereas in the United States they are close to zero (see special chapter on housing in the *Economic Survey of Denmark*, OECD, 1999). To be sure, there are also costs entailed with moves into rental properties, but these are typically much smaller. Even though transactions costs associated with buying and selling a property are lower in the United States, the likelihood of moving is substantially higher among people who live in rental properties. Some 5 per cent of households living in rented properties changed State in the year to March 1997, compared with less than 1 per cent for those living in owner-occupied accommodation (US Mobility Report, 1997).

The structure of housing tenure in euro area countries is not that different on average from other OECD economies, although differences within the euro area are wide (Table 36). The proportion of households living in owner occupied housing varies from 38 per cent in Germany to 80 per cent in Ireland.[91] Moreover, countries with high internal migration (Australia, Canada and the United States) have a high proportion of owner occupiers. This may partly reflect the lower transaction costs associated with buying and selling in these countries. In any case, job mobility need not always be connected with changing residence. Evidence from the late 1980s indicates that only a quarter of all job changes were associated with a change of residence (OECD *Economic Survey of Denmark*, 1999). Policies and restrictions[92] governing the rental market may also impinge on housing mobility and hence, indirectly on labour mobility. Strict rent controls in the private sector, without compensation to the landlord, ultimately leads to fewer rental properties and a lower average quality and diversity of the rental stock. This can produce lock-in effects, as those tenants who have succeeded in obtaining an apartment at a controlled rent below the market rate have few incentives to move.[93] Likewise, a narrower range of properties makes it more difficult, and reduces the incentive, to move.

Most euro area countries no longer have widespread and binding rent controls, but a (falling) proportion of the rental housing stock nonetheless is covered by restrictive rent controls and many euro countries have legal limits on the rate at which rentals can be raised. While these arrangements should normally enable a well operated private rental market to exist, fast growing regions may incur housing shortages and have difficulty attracting workers to the area. In contrast, rents in public housing are almost always below the market rate and therefore other rationing mechanisms are needed. Typically, duration of residence in the regional area is the criterion used. In this case, a person who moves in order to take work in another region may have to wait for a long period to requalify for access to public housing. If the implicit rent subsidy is large, unemployment traps may be large, since accepting paid work may leave the worker

Table 36. **Housing tenure in OECD countries**[1]

Percentage shares

	Owner-occupied	Social rented	Private rented	Other[2]
Euro area countries				
Austria	41	23	22	14
Belgium	62	7	30	0
Finland	72	14	11	6
France	54	17	21	8
Germany	38	26	36	0
Ireland	80	11	9	0
Italy	67	6	8	10
Luxembourg	67	2	31	0
Netherlands	47	36	17	0
Portugal	65	4	28	3
Spain	76	2	16	6
EU "outs"				
United Kingdom	66	24	10	0
Denmark	53	20	21	6
Sweden	43	22	16	19
Greece	70	0	26	4
Other OECD				
Australia[3]	70			
Canada[3]	63			
United States[3]	64			
Japan[3]	59			
Norway	62	4	21	14
Switzerland	31	3	60	6

1. 1995 if not stated otherwise.
2. Municipally-owned and employer-provided apartments and co-operative housing in the Nordic countries.
3. Based on data in Oswald (1996) for early 1990s.

Source: ECODHAS and A. Oswald (1996).

financially worse off. Such barriers to mobility in the housing market could be limited by charging market rents for public housing and assisting the indigent with tenure neutral cash housing benefits and substituting alternative tax bases for revenues raised from housing purchase and sale transaction taxes.

Some researchers identify a negative relationship between the likelihood of relocating and the generosity of social protection expenditures (Antolin and Bover, 1993; Bentolila, 1997), depending on whether a person without work is entitled to claim unemployment benefits and the efficiency of the public employment services (Faini, 1996). Replacement ratios measure the relationship between incomes in and out of work and hence provide a rough proxy for the incentive to seek work.[94] High net replacement ratios allow individuals to search longer for suitable employment opportunities and dampen the financial incentive to work, implying longer average unemployment spells, possibly higher wage pressures and a slow speed of labour market adjustment after an exogenous shock (Scarpetta, 1996). High replacement rates may also serve as a substitute for migration, to the extent that migration is a way to pool, and thereby reduce family income risk. Until a few decades ago, it was quite common for just one member of the family to migrate. Repatriated earnings would serve to improve the pecuniary well-being of the household, and since the sources of income were diversified the risk of household income volatility related to region specific shocks would be reduced. Insurance against income loss as a result of economic events, such as job loss, are now largely met through social welfare systems and may be one factor behind the secular decline in international and intra-regional migration since the 1960s.

Average net replacement rates in euro area countries are typically higher than in other OECD economies, but even within the area the distribution is wide (Table 37). In Italy, where the family unit is assumed to provide support during

Table 37. **Gross and net unemployment replacement rate in OECD countries, 1994**

	Gross		Net	
	Single	Couple No children	Single	Couple No children
Euro area countries				
Belgium	38	43	65	57
Finland	52	52	63	63
France	58	58	67	70
Germany	37	42	68	61
Ireland	24	38	34	49
Italy	30	30	36	42
Netherlands	70	70	69	69
Spain	70	70	72	73
EU "outs"				
Denmark	60	60	70	70
United Kingdom	16	26	23	36
Sweden	77	77	75	75
Other OECD				
Australia	24	43	30	50
Canada	55	55	58	64
Japan	52	52	63	61
New Zealand	22	37	25	41
Norway	62	62	66	67
Switzerland	70	70	73	73
United States	50	50	58	60

Source: OECD *Database on Taxation and Benefit Entitlements.*

economic difficulty, the rate is below 20 per cent, but has increased quite sharply in the early 1990s.[95] In contrast, the average net rate is above 50 per cent in all the northern euro area countries, except Ireland. Over the past 30 years, the rate has risen in the majority of euro area countries, remained broadly constant in Belgium, Germany and only declined in the Netherlands.

Incentives for job search effort and their geographic scope, may vary between countries for a given level of the replacement rate. This in part reflects differences in alternative benefits and variations in rules governing entitlement to unemployment benefits. Examples include tighter administrative controls on verifying job search effort and compulsory participation in special programmes for the unemployed. In Spain, for instance, an agricultural employment plan (Plan de Empleo Rural) grants seasonally unemployed farm workers in Andalucia and Extremadura who have worked a minimum of 40 days in a year, with unemployment benefits equivalent to 75 per cent of the minimum wage for the remainder of the year. The programme reduces workers' willingness to migrate, or to take-up low paid work in sectors other than agriculture and slows the pace of adjustment. Unemployment rates in these two regions are the highest in Spain at over 30 per cent, some 10 percentage points above the national average.

Few OECD countries apply sanctions on those who are unemployed and refuse a job which would require moving or a lengthy commute. Finland is the only country which requires unemployed people to be prepared to relocate, provided the position and prospective housing is suitable and it is impossible to fill the vacancy from within the local area and that it does not oblige native Swedish speaking Finns to work in Finnish and *vice versa*.[96] In other countries, a commute time or distance limit applies which may effectively limit the geographic scope of job search. In Belgium and Switzerland the legislated commute time is high at up to 4 hours, and in Denmark and Australia it is set at 3 hours. Application of sanctions – typically a temporary reduction or suspension of a benefit payment – for refusal to relocate or commute are, however, almost never applied.[97] An unemployed EU citizen refusing available work in another EU country is never considered as a reason to sanction continued unemployment payments.[98] Indeed, after losing a job the worker must remain at least one month in that country before being entitled to leave and continue receiving an unemployment benefit. Moreover, an unemployed person moving to another EU country to look for work risks losing entitlement to benefit and eventual expulsion after 3 months (see below).

Minimum wages may play some role in preventing wages from falling sufficiently in response to adverse shocks and limiting labour mobility. In all euro area countries with a minimum wage the rate is set nation-wide, with no adjustment for regional differences in the cost of living and labour market conditions (Table 38). And among those euro area countries which have a statutory minimum

Table 38. **Economic features of minimum wages in OECD countries**

	Hourly rate, US dollars[1]		Coverage		Regional differentiation	Age differentiation	OECD *Jobs Study* recommendation
	Exchange rates	PPPs	% of full time median earnings	% of low paid[2] median earnings			
Euro area countries							
Belgium	6.77	6.40	50.4	71.6	No	Yes	Modify
France	6.58	5.56	57.4	86.2	No	Minor	Modify
Luxembourg	7.23	6.91	..	..	No	Yes	
Netherlands	6.42	6.00	49.4	77.6	No	Yes	Modify
Portugal	1.78	2.32	..	..	No	Yes	Modify
Spain	2.53	2.94	32.4	66.6	No	No	
Ireland[3]	6.57	6.05	64.0	..	No	Yes	
EU "outs"							
Greece	2.74	3.06	..	..	No	No	Modify
United Kingdom[4]	5.97	5.07	46.0	..	No	Yes	
Other OECD							
United States	5.15	5.15	38.1	79.5	Yes	Minor	
Canada	4.53	5.33	39.6	90.1	Yes	No	Modify
Japan	4.88	3.38	30.8	64.7	Yes	No	
Korea	1.05	2.15	24.4	47.4	No	Minor	
Czech Republic	0.39	0.92	21.2	34.6	No	No	
Hungary	0.48	1.05	37.4	71.9	No	No	
Poland	0.74	1.57	44.6	78.3	No	No	
New Zealand	4.07	4.46	45.6	81.4	No	Yes	

Note: Germany, Finland, Austria, Italy, Denmark, Sweden and Australia do not have a statutory minimum wage.

[1] Exchange rates refer to the end of December 1997. The PPPs refer to provisional estimates of Purchasing Power Parities for final private consumption expenditure for December 1997.

[2] The low paid are defined as employees in the bottom 20 per cent of the earnings distribution. By construction, median earnings for this group correspond to the upper earnings limit for the bottom decile of employees.

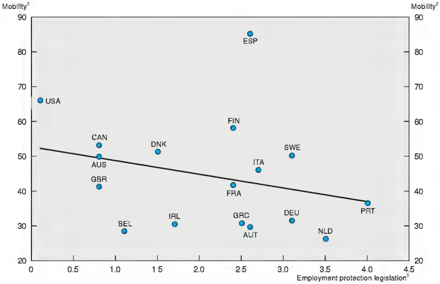
[3] Date of introduction not yet decided.

[4] To be introduced in April 1999.

Source: OECD (1998*b*), *Employment Outlook.*

wage, they are generally set at a high level in international comparison. In contrast, the United States, Canada and Japan have regionally differentiated minimum rates, and the average level does not truncate the wage distribution to the same degree. The empirical literature (see OECD, 1998*f* for a review) suggests that the impact of a minimum wage on employment is difficult to identify, but probably small in countries with a low minimum wage. More conclusive evidence for negative employment effects is found for younger workers and the unskilled. But little is known on the relationship between minimum wages and geographic

Figure 25. **Employment protection legislation and job mobility**[1]



1. The equation of the regression line is:
   Mobility = 52.63 – 3.92 x Employment protection legislation
   Adj. $R^2 = 0.01$ T. (6.31) (-1.11).
   If Spain (ESP) is excluded from the sample then the regression gives:
   Mobility = 52.42 – 5.11 x Employment protection legislation
   Adj. $R^2 = 0.17$ T: (8.95) (-2.04).
   Spain is an outlier partly because the high level of job protection for regular workers has led firms to hire employees on short-term contracts, which tends to increase job mobility.
2. Job mobility is measured by short-term employment turnover.
3. The synthetic index of employment protection legislation is constructed as the weighted sum of (preliminary) estimates of six employment protection regulations for regular contracts. The weights are based on a factor analysis of these six indicators.

Source: OECD Secretariat.

labour mobility. Evidence suggests that minimum wages do deter international labour mobility (Santiago, 1993). Germany and Austria, two countries which do not have a statutory national minimum wage, have introduced a construction sector minimum wage that may be seen as a restrictive arrangement to shelter local construction workers against low-wage competition from other EU countries. Previously, construction companies have cut costs by subcontracting operations to firms in other countries, such as Portugal and the United Kingdom. These firms send workers to third countries for temporary assignments paying wages and social contributions of the home country, which are substantially below the host country. German and Austrian legislation extends any collectively agreed minimum wage to such foreign workers and removes the incentive to continue this practice.[99]

Another factor restraining job mobility is restrictive employment protection legislation (EPL) governing the hiring and firing of staff. Rules cover a wide range of employer-employee relations, including unfair dismissal, lay-offs for economic reasons, severance payments, minimum notice periods, administrative authorisation for dismissals, and consultation with union representatives prior to significant labour policy decisions are taken by management. As already noted, rules of this kind may be beneficial to the extent that they increase investment in firm specific human capital, and greater job security may provide non-pecuniary benefits to employees. On the other hand, they impose constraints on firm's behaviour which may raise labour costs, affect hiring decisions, lead to less efficient work arrangements which evade restrictive hiring and firing practices, such as for some temporary employees, and coincide with low job mobility (Figure 25). Mobility is generally low in those countries where EPL is restrictive and higher where countries have more liberal hiring and firing laws. This suggests that employment policy reforms which enhance the ability of labour markets to respond more rapidly to shocks through adjusting labour inputs could also strengthen job mobility. The OECD *Jobs Strategy* recommended action favouring reform of EPL in most OECD countries. Ireland was the only euro area country where no recommendation was made.

Non-economic factors

Non-economic factors, such as language, family dislocation and different lifestyles are also relevant determinants of the decision to relocate. The euro area represents many different cultures, manifested in diverse culinary traditions, history, literary and artistic achievements, religious faiths and language. There are nine mother tongue languages spoken in the euro area, (excluding regional languages such as Basque, Catalan, etc.) and for most work, competence in the local language is needed.

The role of language skills influencing the likelihood of the decision to move could be sizeable. Labour flows between countries that speak the same language (*e.g.* Ireland and the United Kingdom) have typically been greater than flows within countries which have two national languages (*e.g.* Belgium). Intra-regional migration rates in Belgium at the NUTS 2 level of disaggregation (and excluding Brussels) were just under 1 per cent of the population in 1993. But migration rates between Dutch and French speaking areas and *vice versa*, are about five times lower than the national average. This dichotomy suggests that language barriers could be an important factor limiting labour mobility. Such barriers, however, are likely to have declined over the past few decades, and continue to do so, since the teaching of foreign languages has become more widespread, with secondary school students learning on average at least one foreign language and starting at an earlier age. In Luxembourg, the Netherlands and Finland more than two foreign languages are taught. Virtually all students choose English. French is the next most popular language, followed by German and Spanish. Moreover, opportunities to maintain and perfect language skills have expanded as the cost of intra EU travel has declined and satellite technology enables the reception of international television programmes. Based on survey interviews, more than 90 per cent of EU citizens found English to be the most useful foreign language. English is also the language known well enough by most EU citizens to take part in a conversation. One third of the EU population can speak English, 15 per cent French and just under 10 per cent German as a foreign language (Eurostat Yearbook, 1997*a*).

Legal and indirect barriers to adjustment

In order to better understand the legal and indirect barriers to mobility, the European Commission established in 1996 a High Level Panel on free movement of persons. The Panel's Report, while recognising the progress which has been made over the past 30 years, drew attention to certain flaws and lacunae in the rules and their application.[100] These include limited cross border portability of social protection and supplementary pension rights, an overly zealous interpretation of the requirements and excessive fees to gain legal residency status, lack of comparability and reciprocal recognition of professional qualifications and restrictions on public sector employment. Typically these indirect barriers do not prevent mobility, but make it more difficult, hindering the full achievement of free movement.

Residence Cards

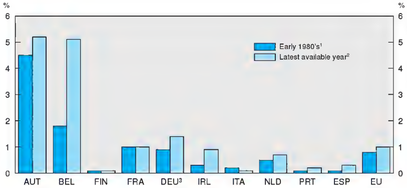
Difficulties getting a residency card are the source of frequent complaints from EU citizens and may frustrate efforts to relocate.[101] Often, only temporary residence cards are issued, yet validation of an employment contract requires a permanent card. In other cases, a residence card is needed to connect to vital services such as gas and electricity. Delays in acquiring a card may deter persons from leaving their native country. Moreover, residence cards for those not gainfully employed are subject to more frequent renewal[102] and the person must provide proof that he has sufficient resources and health insurance for the entire family.[103] Even those with a residence card could face expulsion if they become unemployed and exhaust their entitlement to unemployment benefits. Likewise for self-employed people who cease their professional activity and no longer have sufficient resources.

Students and trainees

Following a period of study abroad, a graduate's first job is often in the host country. Disincentives to study abroad can therefore indirectly limit the degree of geographic labour mobility and local labour market integration. The proportion of transnational students in euro area countries relative to nationals is less than 1 per cent and has remained broadly unchanged over the past ten years (Figure 26). A number of obstacles confront students, trainees and teachers wishing to study or teach abroad (European Commission, 1996*b*). These include partial

Figure 26. **Proportion of transnational euro area students**

As a percentage of total third level euro area students



1. Spain: 1980; Ireland and Portugal: 1981; France, Germany, Italy and Netherlands: 1982; Austria, Belgium and Finland: 1983.
2. Portugal: 1989/90; Netherlands and Spain: 1992/93; Belgium, France and Germany: 1993/94; Austria, Finland, Ireland and Italy: 1994/95.
3. Western Germany only in 1982.

Source: UNESCO Statistical yearbooks.

implementation of relevant EU Directives, that sometimes leads to an ambiguous legal status, which can create problems in terms of social security and tax obligations. Most cases of double taxation, however, are avoided by bilateral tax agreements which follow the OECD model.[104] Furthermore, portability of social assistance and educational grants is limited.[105] An unemployed person, for example, wanting to undergo training in another member State loses his right to unemployment benefit and social security if the training lasts longer than three months, and in some member States he automatically loses his right on leaving the state for more than three months.

There are also problems with the mutual recognition of academic and vocational qualifications. Separate sectoral Directives provide for qualification recognition of seven regulated professions,[106] but some countries have failed to implement them or impose unduly harsh language aptitude requirements, and qualifications gained outside the Community are not recognised. All the regulated activities not covered by sectoral directives fall within the scope of the general system of diploma recognition governed by Directives 89/48/EEC and 92/51/EEC. The principle is based on recognition of competence to pursue a professional activity. When a member State can demonstrate substantial differences in education and training standards, additional requirements such as aptitude tests and professional experience may be demanded. Over the past four years, the average rate of refusal or imposition of further requirements was around 5 per cent. National authorities, however remain reluctant to recognise professional experience acquired by an applicant and decisions are rarely made within the four month limit laid down in Directive 89/48/EEC. Diploma recognition in the public sector has not been achieved to the same extent or pace as in the private sector and access to public sector employment by nationals of other EU States is limited.[107] Between 1991 and 1994, some 11 000 EU citizens (of which 6 000 chose to live and work in the United Kingdom) took advantage of the mutual recognition of their qualifications under the general system (Directive 89/48) and about 5 000 each year under the sectoral directives from the regulated professions. Efforts to simplify the procedure and unify the system of professional and vocational qualifications have been proposed by the European Commission. The plan replaces Directives covering individual professions with a single Directive. The European Council has approved the plan and it should be adopted by the European Parliament and implemented in 1999.

Social assistance

Different social systems can give rise to problems when people move, or intend to move to another member State. Issues concern the preservation, acquisition or exercise of social rights. Article 51 of the Rome Treaty and Regulations 1408/71, 574/72 and 1251/70 were designed to assist the co-ordination of national social security systems so that persons exercising their right to free movement were not disadvantaged from the social security standpoint. The Treaty Regulations only cover workers and their dependants and exclude the non-employed. They also distinguish between social security and social assistance. Social security payments, such as unemployment benefits and public pensions are covered by the rules, but social assistance schemes, such as housing benefits, minimum income support payments and supplementary pensions are excluded. The dividing line between social security and social assistance is not precise and member States utilise social assistance schemes to different degrees. It is not straightforward to make a clear distinction between the two and no clear cut definition of these concepts exists. Moreover, when Regulation 1408/71 was drafted, most benefits were payable out of a social security fund, but increasingly welfare programmes have both social security and assistance characteristics and are often integrated with the tax system, which falls within the competence of the member States.[108]

These arrangements leave gaps in the scope and coverage of schemes and are complex to administer. It is possible, for example, for someone who moves to another country to work to lose the rights that they were entitled to when they return to their country of origin. Moreover, in some countries, waiting periods must have elapsed before certain entitlements are recognised, and in other cases, entitlements may only be paid out in the country where the entitlement was earned. A worker who changes his country of work many times may find he is entitled to fewer and lower benefits than someone who has not moved through their working life. Arrangements for the exportability of benefits[109] may, therefore, have significant consequences for geographic mobility. Because social assistance benefits are not exportable (or portable), persons receiving them in one member State who wish to move to another member State may be expelled from the territory of the latter on the grounds that they do not have sufficient means, or may be unable to leave the territory of the former in order to continue receiving social assistance.

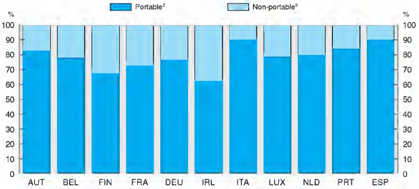
The absence of portability of social assistance is a barrier to mobility. If people leave their country of birth or residence they lose the right to take with them benefits which they may already be receiving. The impact is likely to be larger if the country of their destination provides less extensive entitlements, or requires a lengthy period of residence to establish entitlement. In other cases, people leaving a country in which they have accrued entitlements to a future benefit may wish to claim that benefit subsequently from abroad. If they cannot do this, they are disadvantaged compared with those who did not move.

Even certain exportable benefits can result in less favourable treatment among those who move, compared with those that choose not to. For example, although the unemployed have the right to stay in a member State other than the one in which they were last employed, entitlement to unemployment benefit is limited to a maximum of three months. And if an unemployed person moves to another country for training purposes, they lose their unemployed status which entitles them to social security cover and unemployment benefits. In these circumstances, the effectiveness and incentives for an unemployed person to relocate and seek work in those areas where labour market conditions are buoyant is reduced.

The magnitude of the barrier varies widely across euro area countries. Figure 27 shows the proportion of social welfare payments which are exportable. The magnitudes are suggestive only, given the difficulty identifying a correspondence between payments covered by Regulation 1408/71 and national welfare systems. The data underlying Figure 27 are based on European Case law, which has established that old-age, occupational illness and survivors benefits are exportable benefits within the EU and a study by Bolderson and Gains (1994) which compared portability arrangements across OECD countries. The proportion of benefits that are exportable is high in virtually all euro area countries. In Italy and Spain, approximately 90 per cent of social expenditures are exportable, reflecting these countries extensive reliance on contributory schemes. Among

Figure 27. **Portable and non-portable social expenditures in 1995**[1]

As a percentage of total social expenditures excluding health



1. Except for Ireland, Netherlands and Portugal: 1996.
2. Old age cash benefits, disability cash benefits, occupational injury and disease, sickness, survivors and unemployment.
3. Family services, active labour market policies, housing, family cash benefits, services for elderly and disabled and other contingencies.

Source: OECD, Social expenditure database.

those countries where welfare spending is more generous, the proportion is lower. In France, Germany and Finland, for example, the proportion is closer to 70 per cent. The unweighted average is around 75 per cent and has probably increased over the years as case law has applied a broader definition of social security payments, compared with earlier interpretations of Regulation 1408/71.

Supplementary pensions

Typically, those people who move between member states to work are young. This probably reflects a number of socio-economic factors, such as weaker family ties and better language skills. But it may also be linked to the relative importance attached to arrangements for ageing. In recent years the co-ordination of insurance based public pensions schemes removed obstacles to free movement created by the existence of vesting periods and national authorities are now required to assimilate periods served abroad to periods served in home countries. The existing rules, however, do not apply to supplementary pension schemes. The importance of these schemes varies widely across EU member States. In Italy they cover about 5 per cent of private sector employees and represent some 2 per cent of total pension payments and the share is rapidly rising. The Netherlands, Denmark and France are at the other extreme. In these countries, such schemes cover more than 80 per cent of private sector employees and account for up to a third of total pension payments. The characteristics (*e.g.* voluntary or involuntary, defined benefit or defined contribution and funding arrangements) of schemes and incentives to participate also vary enormously. Defined contribution schemes are typically less distortionary in terms of mobility incentives and are becoming increasingly important in euro area countries. Employee coverage by supplementary pension schemes and their relative importance in overall retirement incomes is rising. In some countries, pensioners income from supplementary schemes is larger than that from state pensions.

Investigations into the impact of supplementary pension schemes on the free movement of labour go back many years. In 1991, the Commission published a Communication to the Council which addressed the issue. Following discussions within the Commission and consultations with the social partners, the pensions industry and experts within member States, it was decided in 1996 to refer the matter to a High Level Panel. At the end of 1996, the panel delivered its report and identified a number of clear disincentives to mobility. These include long vesting periods and burdensome qualifying conditions, difficulties transferring vested pension rights and tax problems linked to acquiring pension rights in more than one member State.

Vesting periods are usually stipulated within the regulatory framework governing supplementary benefits, but they vary widely across countries. In some cases vesting is immediate, whereas in others it can be up to ten years (Table 39).

Table 39. **Mobility obstacles linked to supplementary pension schemes**

	Entitlement to vested rights	Accrued benefits indexation	Transfer modalities	Obligation	Scheme type	Coverage[1]	Supplementary pension as a % of total pensions
Euro area countries							
Austria				Voluntary			
Belgium	Immediate on employee contribution; 1 year on employer contribution	No, but possible adjustments	Transferability of vested reserves	Voluntary	DB mainly	31	8
Finland		Yes		Compulsory	DB	795	
France	Immediate	–	–	Quasi-compulsory	DB	90	21
Germany	10 years	Yes	–	Voluntary	DB mainly	46	11
Netherlands	1 year	Yes, in practice	Possibility of transfer, under same conditions, within large network of pensions	Compulsory	DB mainly	85	32
Spain	Immediate	No	Transfer to other national plans	Voluntary	DC mainly	15	3
Italy				Voluntary	DB	5	2
Luxembourg				Voluntary	DB	30	–
Ireland		Yes		Voluntary	DB	40	18
Portugal	10 years		Transfer to other national plans	Voluntary	DB mainly	15	–
EU "outs"							
Denmark	Immediate	No, but possible adjustments	Possibility of transfer of surrender value between occupational pension schemes	Compulsory	DC mainly	80	18
Sweden	Immediate	Yes	Full transferability of national plans	Compulsory	DB	90	46

Table 39. **Mobility obstacles linked to supplementary pension schemes** *(cont.)*

	Entitlement to vested rights	Accrued benefits indexation	Transfer modalities	Obligation	Scheme type	Coverage[1]	Supplementary pension as a % of total pensions
United Kingdom	2 years	Yes	Transfer to other pension funds	Voluntary	DB mainly	48	28
Greece		Yes	Transfer to other pension funds	Voluntary	DB mainly	47	80
Other OECD							
Canada	2 years	Weak	–	Voluntary	DB mainly	41	–
Japan	From 5-30 years for voluntary departures	Weak	Little transfer values for employees leaving the fund voluntary and early	Voluntary	DB mainly	37	–
Mexico	No	No	No	Voluntary	DC	–	–
Norway	3 years	Yes	–	Voluntary	DB	66	–
Switzerland	Immediate for minimum contribution	No, but possible adjustments	–	Quasi-compulsory	DC mainly	100 above a certain income level	–
United States	5 years	No	Possibility of lump sum in case of transfer	Voluntary	DC mainly	46	–

Note: Legend: DB – Defined benefit plans; DC – Defined contribution plans.

1. Per cent of private sector workers with a supplementary pension.

Source: Davis (1995), Turner (1995), Pestieau (1992), EU Green Book and OECD Secretariat.

The value, particularly the future value, also varies widely, largely depending on indexing arrangements, or lack thereof, and on the nature of the scheme. Defined benefit schemes tend to disadvantage early leavers and job turnover, both within a member State and between member States, since the value of benefits is often lower for someone who has changed employer, interrupted their working life or moved country of residence.[110] The impact of these barriers on mobility can be significant. A recent study (Office of Fair Trading, 1997) showed that a mobile worker who changes employer five times could end up with a pension 30 per cent lower than someone who remains with the same employer throughout their working life.

The High Level Panel has recommended that future EU legislation in this field be based on the principle of equal treatment. This means that a European citizen who chooses to work for employers in more than one member State should not as a result incur a loss of supplementary pension rights, which he would not have incurred if both employers had been located in the same member State. The Panel also recommended measures which would allow workers temporarily seconded by their employer in another member State to remain affiliated to the supplementary scheme in the country where they were previously working.

The Commission has broadly accepted the Panel's recommendations and in October 1998 adopted a proposal for a Council Directive on safeguarding supplementary pension rights of employed and self employed people moving within the European Union. The proposal mainly concerns the preservation of acquired rights, a guarantee on cross border payments and allowing workers on temporary detachment to another member State to continue to contribute to the supplementary scheme in the State where they were previously working. It does not solve stumbling blocks to the transferability of supplementary pensions, such as minimum contribution periods, difficulties transferring acquired rights and taxation anomalies. Given the diversity and large number of schemes, better co-ordination of schemes, as was the case with public schemes, is likely to be much more difficult to achieve. The growing preference for defined contribution plans should, however, facilitate and spur closer co-ordination. Some countries have already introduced the possibility of transferring entitlements acquired by the employee to the private pension fund of the new employer.

In summary, while, over the past 30 years, much progress has been achieved reducing legal and institutional barriers to mobility, indirect obstacles continue to act as a restraining force limiting the degree of cross border and intra-country labour flows. At the same time, the economic incentive to move has weakened as income convergence among the euro area countries has progressed, but some labour and social policies have also weakened the incentive to migrate. The key economic influences are most closely linked to certain aspects of housing policies, minimum wages, restrictive employment practices and high unemployment and social assistance replacement rates.

Commission initiatives to promote geographic mobility

The Report of the High Level Panel which highlighted many of the practical and legal obstacles noted above made 80 recommendations which would make it easier for people to use their rights in practice. The Panel particularly emphasised the need for member States to improve co-operation among themselves, ensure better training of officials, greater access to public sector employment, modernising social rights, greater equality of tax treatment and the devotion of more resources to informing citizens of their rights and obligations and work opportunities through further development of the European Employment Services (EURES).[111]

At the end of 1997, the Commission proposed five types of initiatives to strengthen the free movement of workers. These are an improvement in, and more flexible and transparent application of the legal rules, better access and integration of national public employment services across countries, closer interaction between the Commission and national authorities administering community legislation, specific provisions for frontier workers[112] and promotion of a wider understanding and visibility of the right to free movement. The Green Paper focusing on obstacles to transnational mobility of teachers, students and researchers recommended an extensive list of measures designed to reduce barriers. The main reforms centre on greater harmonisation of qualifications, through generalisation of the European Credit Transfer System (ECTS) programme, improving available information and administrative practices, and removing territorial restrictions on grants and national financing.

In mid-1998, the European Commission proposed a number of specific changes designed to modernise EC Regulation 1612/68 and Directive 360/68 to reflect legal rulings and changes in the labour market. In particular, longer lasting residency cards granted to all workers, and not just those who can prove they have a long-term contract were recommended. This will particularly benefit the increasing number of workers with short-term jobs. In addition, the definition of dependants who have the right to live abroad without having to apply for a residency card will be broadened to include family members who are students; currently every adult family member has to apply individually for a residency card. These initiatives may make it less cumbersome to exercise the freedom of movement, but they are unlikely to raise the overall degree of geographic mobility, unless the incentives to move are also sharpened.

Wage and income policies

Wage flexibility

It is unlikely that labour mobility will increase greatly within the euro area over the next few years. Labour market adjustment, however, could be sharpened by greater sensitivity of real wages to excess supply and demand across regions and sectors. The capacity of wages to adjust rapidly to a change in labour market conditions is critical. In the context of EMU, slow wage adjustment to changes in labour market conditions may gradually erode domestic firms' competitiveness and, unlike in the past, it will not be possible to delay adjustment through a nominal exchange rate depreciation. Wage formation structures which ensure overall earnings moderation in line with productivity improvements, and provide flexibility so that wages are able to adjust to reflect local conditions are stressed in the OECD *Jobs Strategy*. In the country specific follow-ups to the OECD *Jobs Study*, every euro area country received some recommendations concerning wage formation and industrial relations. These focused mostly on initiatives to promote more flexible wage determination arrangements, such as through greater decentralisation of wage setting processes and less encompassing wage agreements. While these aspects are not featured in the EU Employment Guidelines, nominal wage trends consistent with the price stability objective are part of the Broad Economic Policy Guidelines, although wage setting remains the responsibility of the social partners at the national, regional, or sectoral level depending on the country's own traditions.

Differences in the wage setting process and labour market institutions have been identified as factors explaining the divergent employment performance between countries and the differences in the amount of time required for full adjustment (OECD *Jobs Study*, 1994; Layard, Jackman and Nickell, 1988; Scarpetta, 1996; Bean, 1994; and De Grauwe, 1993). The mechanism through which differences in the regulatory environment affect the real wage-unemployment relationship are complex. The key links between wage and price rigidities and employment and output performance have been extensively explored in various modelling studies. Single-equation estimates of aggregate wage functions have generally tended to suggest that the degree of short-term real wage rigidity in countries with labour market institutions that are often considered less flexible, such as Italy, France and Germany is not much higher than in the United States. Using panel data on individual wages and regional unemployment rates, Blanchflower and Oswald (1994) address some of the specification problems related to aggregate wage equations. Their results suggest a significant negative relationship between the wage level in a region and the regional unemployment rate (a "wage curve"), and a similar degree of real wage flexibility across countries.[113]

Even though the link between labour market and real wage rigidities can not be easily established on the basis of estimated elasticities of real wages to unemployment, other evidence suggests a positive relationship between these two variables. For example, one empirical finding that is particularly robust across different estimates of aggregate wage equations, is the significantly slower speed of adjustment of real wages in continental Europe compared with the United States and the United Kingdom. The OECD *Jobs Study* found that the estimated half life of adjustment to a shock was completed in one year in the United States and the United Kingdom, whereas it averaged between 1½ and 4 years in other EU countries. As a result, although unemployment does eventually put significant downward pressures on real wages in Europe a larger share of the adjustment is borne by employment rather than wages, because it takes more time to do so. Moreover, employment is also slower to adjust, further delaying the absorption of unemployment.

A cross-country comparison of the correlation between the level of real wages, adjusted for productivity and the level of unemployment is another simple indicator of labour market flexibility. Before 1982, the results show a fairly strong positive correlation between the two series in every country, except the United States and the United Kingdom. This suggests that over a period of rising unemployment, the real wage level continued to progress faster than productivity in continental Europe. In contrast, downward pressures from higher unemployment on wage settlements were felt much sooner in the United States and the United Kingdom. The correlation, however, became strongly negative in most continental European countries after the mid-1980s, as real wages grew more slowly than productivity and unemployment rose. The exceptions are the Netherlands, the United States, Belgium and Austria, where real wage gains continued to surpass productivity growth. In the United States and the Netherlands the positive correlation after 1983 reflects a simultaneous decline of productivity adjusted real wages and unemployment. For the Netherlands, this result can be partly explained by the introduction in 1982 of a nation-wide policy of wage moderation which, together with the gradual introduction of structural labour market reforms, led to a significant decline in the unemployment rate.

This broad characterisation of the cross-country differences in wage-setting behaviour is well documented, but little research has yet examined the behaviour at the euro area level. In order to assess whether these empirical stylised facts of the wage-setting process hold across the euro area as a whole, a standard wage equation was estimated. For comparison, a similar specification was used for the United States, the United Kingdom and individual euro area countries (Table 40). While the results confirm the high sensitivity of real wages to unemployment in the long run (column 2), they point to a relatively high degree of short-run rigidity as indicated by the difficulty to find a negative and significant short-term effect (column 1). In addition, the speed of adjustment of real wages

Table 40. **Wage equation estimation results**[1]

	Parameter estimates associated with determinants of real wages[2]									
	Unemployment (real wage rigidities)		Change in:					Level of productivity	Error-correction term Speed of adjustment	Years required to complete half of the adjustment
			Inflation[3]	Wedge[4]	Relative consumer price[5]	Payroll tax	Income tax			
	(1) Impact (change)	(2) Long-term (level)	(3) Impact	(4) Impact	(5) Impact	(6) Impact	(7) Impact	(8) Long-term	(9)	(10)
United States	–0.50	–0.29[6]	–0.33	–	0.48	–	–	0.70	–0.43	1.2
Euro-area	–	–3.18	–	–	–	–	0.76	1.08	–0.14	4.5
Germany	–0.44	–2.50	–	–	–	–	0.57	1.10	–0.18	3.5
France	–0.24[6]	–1.88	–	0.41	–	–	–	0.82	–0.16	4.0
Italy	–1.04	–2.22	–0.13[6]	–	–	0.33	–	0.70	–0.23	2.6
Spain	–	–2.86	–0.10[6]	0.28	–	–	–	1.15	–0.23	2.6
Belgium	–	–2.38	–0.42	–	0.78	0.78	–	1.00	–0.21	2.9
Netherlands	–	–0.53	–0.46	–	–	–	0.25	0.61	–0.38	1.4
Austria[7]	–1.50	–1.30	–0.44	–	–	–	–	1.00	–0.32	1.8
United Kingdom	–0.49	–	–0.07[6]	–	–	–	0.67	0.87	–0.34	1.7

1. The equation is specified in error-correction form and relates the growth rate of the real wage rate (deflated by production price) per employee (including social security contributions) in the business sector to the growth rate of labour productivity, the change in unemployment, the change in the inflation rate, the change in the tax wedge (or its three components separately) and the error-correction term which is the difference between the log-level of real compensation, the log level of labour productivity and the rate of unemployment.
2. The estimates are obtained from a sample of annual data covering the period 1969 to 1997 for most countries. For the Euro-area aggregated data are available from 1971. A dummy variable is introduced in the equation for Germany and Euro-area to capture the break due to German unification.
3. The parameter associated with the change in inflation can be interpreted as an indication of the degree of nominal wage rigidity. The coefficient value is bounded between zero and minus one, with a value approaching the latter indicating high rigid nominal wage adjustment.
4. The wedge is constructed as the difference between the real wage paid by producers, including payroll taxes and the real wage received by workers net of income taxes and social contributions. A higher coefficient means that more of the increase in taxes or import prices is born by producers.
5. The relative consumer price is measured as the ratio of the consumption deflator to the overall GDP deflator.
6. Parameters not significant at the 10 per cent level. Other parameters which had a very low significant value and, in some cases, a counter-intuitive sign have been dropped from the equations.
7. Roger and int'Veld (1997) obtained a similar estimate of the impact effect of unemployment on real wages for Austria. More recently, Hoffer *et al.* (1998) estimated a wage equation for Austria specified in terms of the nominal wage rate and obtained a lower impact effect (–0.42), which was not statistically significant.

Source: OECD Secretariat.

towards their long-run equilibrium level is much slower in the euro area than in the United States. Half of the adjustment is complete in less than 1½ years in the United States, whereas in the euro area it takes 4½ years. Faster adjustment in the United States reflects, *inter alia*, less restrictive employment protection legislation, which makes it easier to reduce employment as cyclical conditions deteriorate.

These results, however, should be interpreted with caution, since they are based on aggregating euro area countries which have different wage setting institutions, labour market policies and reforms to these arrangements at different times over the estimation period. The results may therefore be especially prone to aggregation bias and could mask important structural changes over the period.[114] For instance, the strong negative correlation between the level of the real wage adjusted for productivity and unemployment found in many countries in the past 15 years (Table 41) suggests that real-wage moderation has become fairly widespread independently of the wage-bargaining system and that it may have intensified over the past few years. Indeed, when the wage equations are re-estimated until 1992 rather than over the full sample, they systematically show a tendency to over-predict the level of real wages in the post-sample simulation period. This is consistent with the observation that the wage share has fallen in almost every country.[115]

Table 41. **Correlation between real wage and unemployment[1] changes**

	1969-97[2]	1969-82	1983-97
United States	–0.26	–0.65	0.46
Euro-area	–0.67	0.66	–0.55
Germany	–0.47	0.76	–0.67
France	–0.54	0.80	–0.59
Italy	–0.71	0.40	–0.91
Spain	–0.63	0.71	–0.15
Belgium	0.48	0.87	0.24
Netherlands	–0.44	0.41	0.55
Austria	0.35	0.54	0.56
United Kingdom	–0.32	–0.10	–0.24

1. Correlation between the level of real wages adjusted for productivity and the level of unemployment.
2. The correlations reported in this column are not directly comparable with the parameter estimates shown in column (2) of Table 40. In the latter case, the regression analysis takes explicitly into consideration several factors affecting the relationship between real wages and unemployment which allows for a better identification of the effect of unemployment on real wages.

Source: OECD Secretariat.

Incomes policies and wage adjustment

The use of incomes policies either to reduce inflation or to restore competitiveness, date back to the high-inflation period of the mid-1970s. In an effort to restrain wage inflation an increasing number of countries have resorted to incomes policies (Table 42) although the nature of incomes policies has changed. (Partly in this respect, Box 8 evaluates the lessons from an existing quasi monetary union.) Increasingly governments are trying to persuade the social partners to agree on a programme of wage moderation within a global reform of the wage-setting institution (tripartite agreements), rather than unilaterally imposing wage limits. Implementation of incomes policies in some cases (*e.g.* Italy and the Netherlands) has resulted in a wage-bargaining process that is necessarily more highly co-ordinated at the national level. Although aggregate wage flexibility is important, it is generally not adequate to assure a smooth adjustment at the sector and regional level, as a high degree of centralisation may limit the scope for regional and sectoral variation in wage levels and blunt the incentive for geographic or inter-sectoral labour mobility. Flexibility at the sector and regional level is important since future shocks are less likely to impact at the country level.

In many countries, fiscal consolidation efforts to meet the Maastricht criteria led the authorities to restrain or freeze public sector wage increases and this may have indirectly affected the wage behaviour of the private sector. In Spain for instance, the wage freeze policy imposed on the civil service was accompanied in 1997 by a tightening of the wage norms for state-controlled enterprises which, for the first time, linked wages to productivity gains. For profitable enterprises, nominal wage increases were made conditional on productivity gains with an upper limit set at the official inflation rate. For loss-making enterprises, the total wage bill was frozen in nominal terms. The medium-term impact on fiscal positions, however, may be less favourable and difficult to reverse, since income policy and tripartite agreements often involve concessions through tax reductions and increased spending elsewhere. For example, income policies in Italy in the early 1980s were agreed once the Italian government committed itself to eliminate fiscal drag in the tax system and thereby lower the distortionary costs of inflation. The budgetary cost was 3½ per cent of GDP and the fiscal expansion it represented compromised the wage restraint embodied in the agreement (OECD, 1994). Similar agreements in Spain and Finland were accepted in exchange for higher social welfare benefits, incentives to encourage early retirement or lower increases in administered prices. The effectiveness of income policies, therefore depends on the specific nature of the agreement and should not solely be evaluated on its wage moderation effects over the period of the agreement.

The extent to which incomes policies have made a significant contribution to wage moderation is difficult to identify. Agreements have typically been concluded when the labour market was softening, and hence it is hard to isolate

Table 42. **Incomes policies and tripartite agreements in euro area countries**[1]

		Wage clauses	Other clauses
Belgium	1989	The government can intervene to set wages if it considers that social partners have not done enough to raise competitiveness. The latter is assessed relative to the situation in 1987 and primarily on the basis of export performance and compensation per private sector employee.	
	1996	Framework Law on promotion of employment and competitiveness sets a minimum and maximum threshold for wage increases. The maximum is defined by the weighted average growth of nominal wages in Germany, France and the Netherlands. The minimum is determined by the sum of indexation and increases in line with pay scales.	
Finland	1992	Continued wage freeze in 1993, but if CPI increases by more than a specified amount, wages will increase by the same amount as the price overshooting.	Government cancels its bill on the tightening of the UI scheme.
	1995	Uniform per cent increase in contractual wages. If CPI increases more than a specified amount, the difference will be compensated.	Government to cut income taxes as well as to lower employees' contribution to the unemployment insurance fund, the budgetary cost estimated to be around ½ per cent of GDP in 1997.
Ireland	1988	Wages are set by three-year national pay agreements negotiated by the government, employer and trade unions.	Government agreed to reduce the tax burden on low-income workers, and to raise the threshold at which the tax rate comes into effect.
	1991-93	General annual percentage increases in wages, subject to minimum absolute increase. "Local Bargaining Clause" allows employers to negotiate productivity increases in exchange for pay and conditions, subject to a cap.	
	1994-96	Ceiling on annual wage increases, based on expected price rise. No local wage supplements in exchange for productivity increases.	Government to reduce the tax burden on workers, tax relief being concentrated on low-income workers. Government also to increase spending on welfare, health, education and housing.

Table 42. **Incomes policies and tripartite agreements in euro area countries**[1] *(cont.)*

		Wage clauses	Other clauses
	1997-99	Three year central wage agreement allows for wages to rise by 7¼ per cent between 1997 and 1999. A "local bargaining" clause allows unions to negotiate an additional 2 per cent depending on firm-specific conditions.	As part of the agreement, fairly broad tax reductions were introduced in the 1997 budget and more resources were allocated for active labour market policies.
Italy	1992/93	Dismantling of the wage indexation mechanism. Wages are set on the basis of the government's inflation target.	Social security and labour-market policy becomes subject to negotiations among the social partners
Netherlands	1982	Implementation of the *Wassenaar* Accord: the wide scope of the agreement has allowed for wage moderation to be the object of a broad consensus over the past 15 years, though in some years the threat of a wage freeze imposed by the government has played a key role. Under the accord, the general orientations are defined at the national level but wage negotiations take place at the sectoral level.	Agreement between social partners to adopt a series of measure aimed at increasing the flexibility of the labour market in return for a reduction of working hours. Specific features to facilitate wage moderation are the reduction in social security contributions and the tightening of invalidity benefit.
	1992-93	Moderate wage rises strongly urged by the government.	
Portugal	1996	Wages set on basis of the government's inflation target. The wage norm is automatically adjusted in the case of monthly change in CPI inflation deviating by a certain margin from the envisaged path.	Reforms of employment and labour market legislation, as well as the tax and social security systems and a commitment to improve access to training.

1. Incomes policy implies the involvement of the government in directly setting the acceptable range for wage increases or in enforcing a high degree of co-ordination of wage negotiations between employers and employees at the national level. In Austria, the degree of co-ordination has been very high since the mid-1970s without the government getting directly involved.

Source: OECD Secretariat.

Box 8. Lessons from a quasi monetary union

For over a decade, Austria, Belgium and the Netherlands have essentially pegged their currencies to the Deutschmark. Movements in the bilateral exchange rate of the three countries *vis-à-vis* the Deutschmark since 1983 have never exceeded 5 per cent and short term interest rates were always close to those in Germany. In contrast, the French Franc lost 12 per cent of its value over the same period and the cumulative depreciations of the Spanish Peseta and the Italian Lira were both over 35 per cent. In effect, Austria, Belgium and the Netherlands have operated within a *de facto* monetary union since more than a decade. Their experience, and labour market performance in particular, therefore provide a valuable case study and shed insights on the merit of alternative labour market policies.

Since labour market shocks must be absorbed by either an adjustment in real wages or employment, wage share movements and their decomposition into real wages and employment over a short period provide an indication of the nature of labour market adjustment to shocks. Since the mid 1970s, the evolution of the share of wages in national income in Belgium and the Netherlands has been very similar. In both countries, the wage share peaked in the late 1970s and early 1980s and has declined almost steadily since then, whereas it has remained essentially flat in Austria. The parallel movement in the wage share in Belgium and the Netherlands masks, however, a sharp contrast in terms of the mix between the level of labour compensation and employment. Since 1983, Dutch unit labour costs have risen by some 10 per cent, whereas in Austria and Belgium, they increased by around 40 per cent, which was 10 per cent higher than in Germany. As a result, the Dutch real exchange rate has depreciated in effective terms since 1983, compared with a cumulative 15 per cent appreciation observed in the other two countries. The improvement in competitiveness in the Netherlands has contributed to superior employment growth. Over the past 15 years, the level of employment in the Netherlands has risen by 30 per cent, which is similar to that in the United States.[1]

The difference in the progression of unit labour costs across the three countries can, in part, be explained by real wage developments. Dutch workers achieved modest gains in real wages compared to the Austrians and Belgians, following the implementation of a national wage freeze policy in the early 1980s. Wage moderation, in particular during the boom years of the late eighties and early 1990s when the shock of German unification stimulated German aggregate demand, better prepared the Dutch economy to absorb the asymmetric shock. Moreover, over this period firm profitability rose, which stimulated private investment and led to further gains in both employment and productivity. In contrast, wage developments in Belgium and Austria were largely linked to German developments.[2] As German wages rose faster than productivity, the same occurred in Austria and Belgium and ultimately lowered competitiveness. Combined with lethargic labour markets, adjustment essentially reflected substantial labour shedding and, thus, was achieved at the expense of employment.

The success of the Netherlands in lowering unemployment is not entirely attributable to tight wage policy, though it represents a major element. Belgium also attempted to put in place similar incomes policies and Austria had a highly co-ordinated wage bargaining process. Belgium and Austria encountered problems because wages were anchored to wage movements in Germany and these were clearly

(continued on next page)

(continued)

inappropriate following German unification. The wage freeze policy in the Netherlands led to rapid competitiveness gains, and were underpinned by significant structural labour market reforms. Income and payroll taxes were reduced and the youth minimum wage was lowered. In addition, the generosity of unemployment benefits was gradually reduced over time and their duration limited. These initiatives, together with modest wage growth placed the Netherlands in a more comfortable position to speedily adjust following the unprecedented asymmetric shock of German unification.

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1. Part-time jobs, which account for some of the increase in employment, also tends to dampen overall wages growth.
2. Belgian law restrains the maximum increase in wages. The maximum is defined by the weighted average growth of nominal wages in Germany, France and the Netherlands.

their effects on wage setting from that of increased slack. It is noteworthy that the end of agreements have often been followed by rapid wage increases, as wage earners sought compensation for lost ground. Moreover, even when they are likely to have moderated settlements at the central level, the impact on total wage developments has been uncertain when bargaining has taken place at lower levels and depends on the willingness of the represented parties to follow the central guidelines. In sum, it is difficult to assess the performance of incomes policies in general, as it depends critically on the specific design of the scheme and the country context. There are nevertheless several examples of long-lasting and successful incomes policies, notably those implemented in the Netherlands and Ireland.

A race to the bottom or to the top?

It is conceivable that the advent of monetary union may heighten the perception of a single market and promote a tendency toward EMU-wide wage bargaining or coverage. A rather extreme example followed the unification of Germany where the reduction of wage differentials between the levels in the East and West was faster than relative productivity gains and led to lower overall employment. While this experience was somewhat unique, similar pressure to reduce differentials have surfaced in the past in Italy and Spain. To date, some unions have tried to negotiate EU wide deals, but these relate mostly to conditions and reflect concerns that EMU will provoke pressure for a generalised "race to the bottom" or "social dumping", rather than pressure to emulate the leading country in terms of wage levels and labour regulations.[116] Social dumping is difficult to define. Even for trade dumping it is usually hard to distinguish between dumping and price discrimination, but distinguishing between social dumping and comparative advantage or differences concerning preferences for the extensiveness of the welfare state is probably impossible – at least in the current institutional setting of OECD countries (Cordella and Grilo, 1998). Two major questions arise in this context: would rising mobility lead to a significant shift in tax bases and unduly lax labour regulations and thus threaten to reduce the scope of the welfare state? Should measures leading to non-wage labour costs be harmonised?

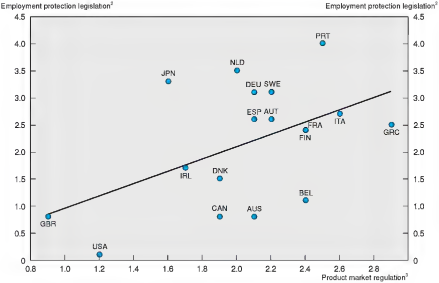
Theory would suggest that wide differences in social security contribution rates and indirect labour costs in general can be sustained as long as labour mobility remains low. From a producer's point of view, indirect labour costs are no different from any other cost component. Differences across countries or changes in non-wage costs in a country do not matter, provided wages are sufficiently flexible. Data on levels of unit labour costs suggest that the large differences in wage and indirect labour costs in the EU are indeed largely compensated by differences in productivity levels or other cost components. In addition, labour regulations that are least-cost measures to fix a market failure, like internalising an externality, are welfare improving whether or not trade partners take similar measures. However, problems are likely to arise if wages show little flexibility or no flexibility at all, as is the case with minimum wages. Closer integration could, thus, shift equity-efficiency trade-offs and it could become more costly to achieve a given equity objective. Concerning efficiency considerations alone, greater wage flexibility would obviously be most welcome.[117]

As competitiveness considerations increase in importance with greater integration, countries are likely to think harder about measures which raise labour costs further so as not to induce a rise in unemployment; and they may resort to cuts in indirect labour costs so as to reap growth and employment stimuli or to speed up a move towards labour market equilibrium. This has apparently happened in Australia, where States in good budgetary shape have led a move towards reducing pay-roll taxes with the result that the share of pay-roll tax in total State tax receipts fell significantly since the mid-1970s (Ryan, 1995). This, however, is an extreme example. OECD (1996*b*), for instance, shows that trade liberalisation has not led to a watering down in core labour standards, such as freedom-of-association rights; there is even a positive association over time between trade reforms and improvements in core labour standards. In addition, federations have federal minima for most labour regulations and pay-roll taxes are set centrally. However, a major difference as compared to the euro area is that federal minima outside Europe are usually truly minimal, while in the euro area countries they are often fairly generous. The US minimum wage is, for instance, considerably less constraining than minimum wages and wage floors set by collective agreements in most of continental Europe. In this context, the OECD has argued extensively that a reassessment of many labour regulations and lower non-wage labour costs in most continental European countries would be most welcome. Another major difference is that income differences are much smaller and preferences concerning welfare state provisions are much more homogeneous in fully-fledged federations. All of this does, of course, not rule out that all EU countries take a common view on the appropriateness of certain labour regulations. This may, in addition lower the cost of doing business across Europe.

The interaction between product and labour markets

Another difference between the OECD *Jobs Strategy* and the European Employment Guidelines is the importance the *Jobs Strategy* places on enhancing product market competition so as to reduce monopolistic tendencies and weaken

Figure 28. **Product and labour market regulation**[1]



1. The equation of the regression line is:
   Employment protection legislation = -0.18 + 1.14 x product market regulation
   Adj. R^2 = 0.21 T : (-0.17) (2.33).
2. The synthetic index of employment protection legislation is constructed as the weighted sum of (preliminary) estimates of six employment protection regulations for regular contracts. The weights are based on a factor analysis of these six indicators.
3. The index of product market regulation is on a scale of 1 to 3. A higher number represents more stringent product market regulation. For details on the construction of the index see OECD (1998*i*).

Source: OECD Secretariat.

insider-outsider mechanisms while also contributing to a more innovative and dynamic economy. Although *Jobs Study* recommendations in the competition area differ from country to country, the need to subject State Owned Enterprises (SOE) to stronger competition and privatisation was identified in most euro area countries. When markets are not competitive, adjustment may be prevented or slow and could frustrate the effectiveness of macroeconomic policies in sustaining growth and stabilising the cycle. Furthermore, if firms in protected or regulated sectors are slow to adjust prices if hit by a shock, the burden of adjustment falls more unevenly on the open sector in terms of both downward pressure on prices, profitability, output and employment. These pressures may escalate with the introduction of the single currency as increased price transparency should intensify competitive forces operating in the euro area. Enhancing product market competition and market contestability through deregulation could, therefore, sharpen the links between wage and price flexibility and allow prices to adjust more speedily to asymmetric shocks. Moreover, product market reforms could also help reduce the opposition of vested interests or insider power to labour market reforms; countries which have stringent product market regulation tend to have restrictive employment protection legislation (Figure 28). The sectors where SOE's are largely concentrated also tend to be those where restrictive employment practices and protection are greatest. This suggests that reforming inefficient product market regulation and SOE's would also make it easier to ease the restrictiveness of EPL and serve as a catalyst for more rapid and bold labour market reforms. This may well support a virtuous circle, since the full benefits of increased product market competition will only be reaped if sufficiently flexible labour markets allow a swift reallocation of labour.

Notes

1. A more recent study concluded that the savings on transactions costs could be almost twice the level estimated by the Commission (IFO Institute, 1996).
2. Intra euro area currency risk will, by definition, not be a factor once the monetary union is established.
3. The OECD's methodology for compiling euro area-wide data is explained in general terms in *Annex II.* A document which provides a technical description of the methodology has been posted on the internet (www.oecd.org/eco/data/euroset.htm). Unless indicated otherwise, euro area aggregate data in this paper are based on the methodology described there.
4. Note that no adjustment is made to exclude intra euro area investment income and transfer flows due to the lack of required information. Moreover, the adjustment made to traded goods is likely to be imperfect given the current difficulties measuring bilateral trade flows within Europe. While in principle transactions within the euro area should cancel out, in practice, they do not because concepts are not fully harmonised between countries and the quality of reporting varies. This results in double counting or omissions and may exaggerate the euro area current account balance. For instance, when the euro area trade balance is computed on the basis of recorded extra-European trade in goods collected from customs documentation which is generally less susceptible to recording problems the trade surplus is lower by about 0.7 per cent of GDP. In order to overcome such problems, from January 1999 each member State will provide balance of payments data which are compiled using a common methodology. The euro area balance of payments statistics will be compiled by aggregating – on a gross basis – the extra-euro area balance of payments data reported by the eleven participating countries. As from April 1999, the ECB will publish monthly balance of payments figures using this methodology. And from July 1999, the ECB will publish in co-operation with Eurostat a quarterly balance of payments for the euro area with a more detailed breakdown of the main items of the financial account (ECB, 1999).
5. This section does not deal with such issues as the effect of the euro on non-euro area countries or its potential role as an international currency. Some of these issues are covered in OECD (1997*b*) and Portes and Rey (1998).
6. The weights on the real interest rate and the real exchange rate are 1 and 0.15 respectively. They were derived from simulations of the OECD Interlink model. The calibration of the weights is subject to the usual caveat of being sensitive to the nature of the shock. Similar indices of monetary conditions are used in Canada and New Zealand.

7. OECD monetary aggregate data differ from those published by the ECB. The ECB publishes monetary aggregates that are based on the consolidated Monetary Financial Institutions balance sheet. Long historical series on this basis are not available.
8. The rule proposed by Taylor calculates an "optimal" real short-term interest rate (IRS*). It is determined by an equilibrium real interest rate (IReq), current inflation rate expressed in percentage terms (INF), an unweighted average of the output gap 100*(Y-YPOT)/YPOT and the deviation of inflation from its target value (INF – INF*):
   $$IRS^* = IReq + INF + 0.5\ (100^*(Y\text{-}YPOT)/YPOT) + 0.5\ (INF - INF^*)\ (1)$$
9. BIS (1998), *Annual Report* No. 67 and IMF (1998). For a methodological discussion, see S. Gerlach and G. Schnabel (1998).
10. A study by Clarida *et al.* (1997) finds evidence that central banks respond to anticipated inflation as opposed to lagged inflation.
11. As would be expected, the output gap weighs less heavily in the forward-looking Taylor rule. For Germany, the output gap is estimated to account for one fifth of the changes in interest rates, whereas differences between forecast and target inflation account for the other four fifths. These weights have been used for the euro-area.
12. This section draws on OECD (1998*a*).
13. The new institutional framework is described in the Maastricht Treaty (1992) and in the Protocol annexed to the Treaty on the Statute of the European System of Central Banks and of the European Central Bank.
14. The NCBs of the member States which are not participating in the third stage from 1999 are members of the ESCB with a special status: they will conduct their respective national monetary policies and will not take part in the decision-making process concerning euro-area monetary policy and in the implementation of such decisions.
15. A third decision-making body, the *General Council*, consisting of the President and Vice-President of the ECB and the governors of all EU national central banks, contributes to the collection of statistical information, the reporting activities of the ECB, the establishment of rules for standardising the accounting operations undertaken by the NCBs as well as the preparations for irrevocably fixing the exchange rates of the currencies of the member States with a derogation.
16. Article 12 of the Statute: "To the extent deemed possible and appropriate ... the ECB shall have recourse to the national central banks to carry out operations which form part of the tasks of the ESCB". This is the *subsidiarity* principle. The NCBs may also perform other functions (*e.g.* those related to prudential supervision of credit institutions and the stability of the financial system) on their own account, unless the Governing Council rules that such activities interfere with the objectives and tasks of the ECB.
17. Havrilesky and Gildea (1992, 1995), McGregor (1996) and Gildea (1992) argue that Federal Reserve Bank presidents' voting reflects their political and regional background. They also argue that there are differences between Board members, who are political appointees, and presidents of the regional Federal Reserve Banks, the latter being always more conservative. These findings are challenged by Tootel (1996, 1991). On these issues see Dornbusch, Favero and Giavazzi (1998).
18. It has been argued that the diffusion of power and responsibilities between the regional reserve banks contributed to the poor performance of the Fed in the late 1920s and 1930s. The 1935 Banking Act centralised responsibility for monetary policy establishing the Federal Open Market Committee (FOMC). However, as yet there is

no evidence that national or regional considerations have played a significant role in ECB policy decisions. Indeed, the co-ordinated interest rate cut on 3 December 1998 was implemented on a euro area-wide basis, despite the cyclical conditions in some countries suggesting such a cut may have been unnecessary in certain participating nations.

19. See Article 7 of the ESCB Statute.

20. There is at least some evidence that stronger central bank independence goes hand in hand with lower inflation. There is, on the other hand, little empirical evidence for lower sacrifice ratios stemming from greater central bank independence (Forder, 1998).

21. See Article 109*b*, section 3.

22. For example, the central bank's views on the transmission mechanism or the state of the economy.

23. Although the Governing Council has decided not to publish the minutes of their meetings, the ECB President has committed himself to give a press conference following the first Council meeting of every month.

24. If the scope for persistent inflation differentials within monetary union without undermining regional competitiveness is large, for instance due to big differences in productivity growth between countries, then price stability, as defined, could be a tight constraint because inflation above 2 per cent in some countries would have to be compensated by others in order to achieve area wide price stability.

25. The ECB's euro-area definition of M3 includes currency in circulation, overnight deposits, term deposits of less than two years, deposits redeemable at notice of up to 3 months, repos, debt securities with maturities of up to two years and unit/shares of money market funds and money market paper. This definition is wider than current M3 measures for individual countries, largely because of the inclusion of money-market funds.

26. The ECB will monitor monetary developments against this reference value on the basis of the three-month moving average of the monthly twelve-month growth rate for M3.

27. Broadly speaking, countries' experiences with approaches to meet a price stability objective fall into two categories: using monetary aggregates as an intermediate target; and direct inflation forecast targeting. Countries have had positive experiences with each (albeit in the case of direct inflation targeting, only over the more recent period) and extensive analysis show that operationally there is not a great deal of difference between them (Svensson, 1998).

28. The Swiss National Bank also implements its monetary targeting strategy in a flexible manner (Rich, 1998) as do countries which follow an inflation targeting strategy.

29. See Britton and Whitley (1997); Kieler and Saarenheimo (1998); and Dornbusch *et al.* (1998). Differences in methodology make the comparison of such studies notoriously difficult; no less than four modelling strategies have been attempted: *i)* simulating existing macroeconomic models (single or multi-country); *ii)* small structural models; *iii)* reduced form equations; and *iv)* structural VAR models. Furthermore, various methodologies are open to their own particular criticisms.

30. See White (1998).

31. Recent studies have found weak evidence of a credit channel in Germany, France and Italy. See Bernanke and Gertler (1995); Stöss (1996); and Candelon and Cudeville (1997).

32. Time series analysis of the general government deficit corroborate these trends. Unit root tests on the general government deficit over the past three decades indicate that the deficit is non-stationary in all countries, except the United States.

33. Taking the whole consolidation period from 1991, tax rate increases and base broadening measures at the beginning of this period, increased revenues by a cumulative 1½ per cent of GDP in cyclically-adjusted terms. This compares to an increase in the United States of 2½ per cent of GDP, that was, however, achieved without tax rate increases and reflects in part a significant rise in capital gains.

34. For the euro area, real social security spending (deflated by the private consumption deflator) grew by 1.4 per cent per year over 1993-98, compared with 3.5 per cent over the period 1980-93. The respective data for the United States are 2.6 and 3.8 per cent, and Japan 4.4 and 4.7 per cent.

35. By the same token, insofar as the output costs of fiscal consolidation (especially when output gaps are negative) are also attenuated, this could be construed as an increased incentive toward fiscal prudence – and a diminished incentive for countercyclical policies.

36. The ECB has a very high degree of independence, the Maastricht Treaty forbids the monetisation of government deficits and includes a no-bail-out clause for defaulting governments. The lack of a fiscal role for the Community reinforces the credibility of the no-bail-out clause.

37. However, the New York City debt crisis of the mid-1970s revealed a failure of market discipline. New York's debt problems were largely solved by a subsequent steep rise in inflation.

38. See Scobie and Day (1996).

39. Corsetti and Roubini (1993) argue that instead of fairly inflexible rules and flexible sanctions, the opposite is required, namely flexible rules and tough sanctions. They (and others) have accordingly suggested redesigning the rules in terms of cyclically-adjusted primary balances. However, this would require agreement on the method of cyclical adjustment, which may be difficult to obtain and hard to incorporate into a legal framework.

40. OECD *Economic Outlook No. 62* describes the cyclical sensitivity of budgets in detail.

41. The methodology and results are explained in Dalsgaard and De Serres (forthcoming).

42. The simulations assume that fiscal policy is unchanged in order to purely capture the movement in the deficit stemming from automatic stabilisation and other sources not related to fiscal policy.

43. Exceptional circumstances in the 1990s significantly increased the volatility of the public-sector net lending ratio in Finland and Sweden. To abstract from these special events, the variance of the non-fiscal shocks used to perform the stochastic simulations for these two countries is based on the average variance of shocks of the four largest countries (Germany, France, Italy and the United Kingdom) rather than the variances estimated on the basis of their own past experience.

44. See, *e.g.* Blanchard (1990) and Leibfritz *et al.* (1995).

45. Adjustments and tax gaps would be larger if the analysis were extended to 2050.

46. The dependency ratio is the proportion of the population who are not of working age relative to those who are. Working age is defined as those between 15 and 64 years old.

47. See *e.g.* Ministry of Finance, Denmark (1995).

48. In addition, the Community cannot borrow and the budget is inflexible, because it is set over five-year periods.

49. Also, if consumers are partly "Ricardian", a federal stabilisation policy could be more effective than a regional one, since consumers will anticipate the taxes needed to repay their own regional debt, and raise their saving rates accordingly, whereas the anticipated costs of a federal debt issue are more diffuse. See Bayoumi and Masson (1998), who provide empirical evidence of such an effect in the Canadian provinces.

50. See Krugman (1991*a*). Oates (1972) emphasises the futility of fiscal policy attempts in small open regions to cope with income fluctuations.

51. In Germany, inter-regional transfers also play a large role in regional stabilisation.

52. Alesina and Perotti (1998) characterise this trade-off as increased tax rate risk *versus* reduced tax base risk.

53. Moral hazard in the fiscal sphere can also worsen. Tax sharing and revenue equalisation in Germany, for example, create moral hazard problems among the Länder because there is a lessened incentive to cultivate a larger tax base. See OECD (1998*d*), *Economic Survey of Germany*.

54. Such transfers in effect finance the regional decumulation of wealth occurring *via* persistent regional current account deficits when adjustments of regional competitiveness are impeded.

55. Bayoumi and Klein (1997) show that Canadian provinces draw on the national capital market to smooth consumption with respect to income, but the nation as a whole engages in only partial consumption smoothing.

56. As long as priorities concerning expenditure levels differ markedly, sizeable differences in overall taxation are inevitable.

57. See Hoeller *et al.* (1996) for more information on tax and spending harmonisation issues in the EU.

58. Currently, both the EU and the OECD are working on a precise definition of what constitutes a harmful tax regime. The work in the EU Code of Conduct Group and the OECD Forum on Harmful Taxation is focusing, *inter alia*, on reaching agreement on a list of specific criteria. The already published criteria in the EU Code and the OECD Guidelines are in most respects identical.

59. Differences in tax treatment arise from the imposition of withholding taxes at source, the method and extent of relief of double taxation, and methods of allowing losses in one country to be offset by profits in another.

60. While sub-national jurisdictions in the United States and Canada are also free to set tax rules, there are important differences with the EU: instances of cross-jurisdiction double taxation and possibilities for profit shifting are rare and tax bases are largely harmonised, as are accounting and legal practices.

61. The theory of fiscal federalism holds that mobile citizens and companies would "vote with their feet" until they perceive the benefits of public services to be equal

to tax rates, at the margin, driving both taxes and spending levels to their most efficient levels.

62. Target zone advocates were less vocal when the US dollar appreciated sharply against the yen and deutschemark in 1997. Had zones been in place, the United States might have had to ease and the euro area and Japan to tighten monetary policy to remain within the band, moves which would have made little sense from the euro area's or Japan's economic viewpoint.
63. Articles 109.1 and 109.2 of the Maastricht Treaty. According to a resolution of the European Council in Luxembourg in December 1997, use of this possibility will be made only under exceptional circumstances.
64. The hypothesis of mean reversion of the real exchange is not supported by unit root tests.
65. An example of such a shock is a change in the rate of time preference.
66. Actual foreign investment may be lower than recorded, since Belgium attracts, through preferential tax arrangements, firms to locate their headquarters in Belgium. Thus, although large inward and outward flows of investment are recorded in Belgium, actual investment expenditures are often located in other countries.
67. Only six euro area countries have data on the level of foreign direct capital investment in partner euro area countries.
68. In this case, the implication might be that Italy itself was not an optimal currency area due to regional asymmetries.
69. These shocks, if they were to occur, are typically sector specific and confined to regions, as opposed to countries. Hence, both the existing potential for national monetary policy, and future potential for euro area monetary policy changes to absorb such shocks is limited.
70. Due to lack of data, Ireland is excluded from the calculations. Likewise, there are more than 8 one-digit level economic sectors, but sufficiently comprehensive data are only available for the eight chosen.
71. NUTs is the nomenclature of territorial units for statistics compiled by EUROSTAT. The European Community has three levels of classification. Level 1 (NUTS1) is the largest level of regional disaggregation. The euro area is comprised of 60 NUTS1 regions. *Annex V* lists the regions by name, geographic size and population.
72. A log linear regression relating output volatility to regional size proxied by either population or area suggests that output volatility is negatively and significantly influenced by the level of aggregation. This is intuitive, as aggregation in the limit reduces to a single region which rules out, by definition, volatility.
73. Rather than workers moving to where better employment prospects exist, firms may find it easier to relocate to take advantage of the larger pool of unemployed workers and possibly lower wages. Firm mobility as an adjustment channel is not examined in this study.
74. Quantity adjustments may also occur through changes in labour force participation and hours worked. Intra firm mobility, such as changing occupations or moving to another branch of the enterprise, may also be important, but data on these factors is scarce and, therefore, not treated in tbis chapter.
75. It is rare that ALMP programmes directly aim to raise geographic labour mobility. Norway and Sweden used to have ALMP schemes which provided extensive aid to

workers who moved and job search assistance for vacancies in other areas, but these have been abandoned. Moreover, there have been no suggestions to create EU wide ALMPs training schemes or initiatives to enhance the incentive to work and seek work over a wider geographic area.

76. While labour mobility helps employment levels adjust to changing regional demand conditions, it may also discourage investment in firm-specific human capital and frequent job changes may involve a loss of job-specific skills and high transaction costs for workers and employers.

77. The other three are free movement of goods, capital, and services.

78. The 1992 Agreement on a European Economic Area does grant nationals of EFTA countries the same status as that of Community nationals. The EC/Maghreb, EC/Turkey and EC/ACP (African, Caribbean and Pacific States) Agreements extend the right of non-discrimination with regard to working conditions and wages.

79. Analysis of trends in labour mobility, particularly comparisons across countries is complicated due to the absence of data compiled on a consistent basis. Methods and definitions for compiling statistics vary across countries and therefore, cross country comparisons, especially with levels, should be treated cautiously. Moreover, the decision to move is not only motivated by labour market conditions. Family, retirement and study motives also influence the decision to move.

80. These numbers probably underestimate the degree to which these economies can reallocate labour regionally, since they exclude legal foreign migration, which is relatively more important in the United States and Australia.

81. Labour turnover data does not indicate whether a few people change jobs very often, or a large number of people change jobs occasionally.

82. Decreasing tenure, especially among young people, may reflect increases in temporary employment (*e.g.* in Spain) based on frequent renewal of fixed term employment contracts.

83. Occupational mobility was also high, although this can occur without a change of employer.

84. When individual regions are large relative to the overall aggregate, dispersion measures are biased downwards by the high degree of aggregation. The extreme case is single region countries, such as Luxembourg, Ireland and Sweden. These are, obviously not included in the dispersion measure calculations.

85. Molle and van Mourik (1989) found that such 'psychic' factors negatively and significantly influenced migration within Europe.

86. Blanchard and Katz used a VAR system which links changes in the level of regional employment, employment rate and participation rate, expressed as deviations from the national mean. The identifying assumption restricts innovations in the employment change equation as exogenous labour demand shocks.

87. This result, however, is a long run property which is imposed on the US and Australian model.

88. Debelle and Vickery suggest that this might in part reflect the federal based award system that existed in Australia over much of their sample period.

89. This is somewhat surprising, given that many of the European countries have more centralised wage bargaining institutions and national minimum wages which do not

differentiate by region and hence the degree for regional wage differentials is likely to be more limited.

90. Eichengreen (1993) shows that region specific shocks may be correlated with national unemployment, because symmetric shocks may have asymmetric affects on regions.
91. The low ownership rate in Germany partly reflects the virtual absence of private ownership rights in East Germany until unification in 1991.
92. In Spain, the minimum duration of a rental contract is five years.
93. An extreme example of such behaviour receiving considerable publicity arose when a new mayor was elected to New York City. Although the Mayor is entitled to a large residence for the duration of his tenure, the mayor was reluctant to move, as he would have relinquished his grandfathered right to his personal rent controlled apartment in Manhattan.
94. Practical and methodological limitations with replacement rates include their sensitivity to assumptions concerning age, family status, previous earnings, duration of unemployment and previous employment history of the individual. See Martin (1996) for more details.
95. This mostly reflects the fact that until 1991, replacement rates were calculated based on standard unemployment benefits, which are low and cover only a minority of the unemployed. In 1991, a Mobility Benefit was introduced to replace less generous Special Unemployment Benefits and included in the computation of replacement rates. See Martin (1996) for more details.
96. Norway and Sweden impose some obligation to relocate but details on sanctions and the application of the rule are not available.
97. This may partly explain significant immobility even within urban areas (Meadows, Bartholomew and Cooper, 1988; and Griffin, Knight and Wood, 1992).
98. While there is no general requirement to accept work in another country, people who have habitually worked in a foreign country (*e.g.* frontier workers) may be required to take such positions again.
99. There are also restrictions at the EU level on the employment of workers on temporary assignment. Foreign construction firms and some other member States contested the validity of the legislation. The European Commission eventually issued the Posted Workers Directive (97/71/EC) which accepted such national legislation as legal. The Directive invokes "Social Clause" arguments to prevent "exploitation" of guest workers and to ensure "fair" competition and protect the freedom of service provision.
100. A study by Molle and van Mourik (1988) found that the impact on migration from the removal of legal barriers to labour mobility in the European Community was negligible.
101. On average it takes about four years for complaints to be processed.
102. Every two years, rather than five years.
103. Sufficient resources are defined as resources exceeding those below which the host member State might grant social assistance to its nationals, or the minimum old age pension.
104. Currently, 98 of the 105 possible bilateral tax relations within the Union are covered by a taxation agreement.

105. The exceptions are grants given through the EU SOCRATES/ERASMUS programme, which makes full provision for eliminating the territorial aspect.

106. These are: doctors, nurses responsible for general care, veterinary surgeons, dentists, mid-wives, pharmacists and architects.

107. EC Treaty Article 48(4) allows member States to reserve certain posts for their own nationals. Since no definition as to what constitutes a reserved post exists, public sector employment remains virtually closed to non-nationals.

108. Most cases of double taxation are dealt with through bilateral agreements. But there are gaps as not all member States have agreements with each other and agreements do not cover frontier workers where inconsistencies can be large. For example, a Belgian frontier worker employed all his life in the Netherlands would not accumulate any old age pension entitlement, since the Netherlands has an inhabitant based model and Belgium a system linked to the number of years in work.

109. Portability and exportability are similar terms. For individuals, portability of benefits is a key concern, whereas for governments it is whether these benefits should be exported.

110. It has also been suggested that defined benefit plans could discourage employing older workers (European Commission, 1996*c*).

111. EURES became operational in 1994. It aims to improve mobility conditions and contribute towards the creation of a European labour market by closer co-operation between national public employment services and pooling and disseminating information and advice on work opportunities and procedures to facilitate a smooth transition for those seeking and moving across borders to work.

112. No specific proposals, however, have been advanced. Frontier workers face specific problems relating to social security due to different criteria which apply to such workers and their families in respect of invalidity, unemployment and healthcare benefits, etc. Taxation of frontier workers also poses problems, since the tax regimes of the country of residence and the country of employment overlap for some tax bases.

113. The conclusions drawn based on these findings, however, have been criticised, since the methods used fail to take adequate account of region specific effects (Blanchard and Katz, 1996; Debelle and Vickery, 1998 and Lucifora *et al.*, 1998).

114. For instance, the finding of a significantly higher long-run elasticity of the level of real wages to the level of unemployment for the euro area as a whole may reflect aggregation biases (see Table 41, column 2).

115. Once correction is made for the change in the sectoral composition of aggregate output, a significant portion of the decline in the wage share disappears (see OECD, 1997*d*).

116. Brown, Deardorff and Stern (1996) model the interaction between labour standards and trade, and Sapir (1996) provides an overview and analysis of the discussion on social dumping in the EU.

117. If enough regions would undercut each other in setting wages, labour markets would increasingly approximate a competitive equilibrium (Allsop and Vines, 1998).

Glossary of acronyms

ALMP	Active Labour Market Policies
BCEAO	Banque centrale des États de l'Afrique de l'Ouest
BEAC	Banque des États de l'Afrique centrale
BIS	Bank for International Settlements
BLEU	Belgium Luxembourg Economic Union
CAP	Common Agricultural Policy
CFA	Communauté financière d'Afrique
CPI	Consumer Price Index
ECB	European Central Bank
ECTS	European Credit Transfer System
EDRC	Economic Development Review Committee
EFTA	European Free Trade Area
EMI	European Monetary Institute
EMS	European Monetary System
EMU	Economic and Monetary Union
EPL	Employment Protection Legislation
ERM	Exchange Rate Mechanism
ESCB	European System of Central Banks
EU	European Union
EURES	European Employment Services
FOMC	Federal Open Market Committee
HICP	Harmonised Indices of Consumer Prices
ISIC	International Standard Industrial Classification
NAP	National Action Plan
NCB	National Central Banks
NUTs	Nomenclature of Territorial Units for Statistics
OPEC	Organisation of Petroleum Exporting Countries
PPP	Purchasing Power Parity
SOCRATES	Community programme for co-operation in higher education (Erasmus) Community programme for co-operation in school education (Comenius) Community programme for co-operation in language skills (Lingua)
SMP	Single Market Programme
SOE	State Owned Enterprises
SVAR	Structural Vector Auto Regression
VAR	Vector Auto Regression
VAT	Value Added Tax

Bibliography

Adema, W. (1997),
"What do Countries Really Spend on Social Policies? A Comparative Note", *OECD Economic Studies* No. 28.

Alberola, E. and T. Tyrväinen (1998),
"Is There Scope for Inflation Differentials in EMU? An Empirical Evaluation of the Balassa-Samuelson Model in EMU Countries", Bank of Finland, *Discussion Paper* No. 15.

Alesina, A. and R. Perotti (1998),
"Economic Risk and Political Risk in Fiscal Unions", *Economic Journal,* Vol. 108, No. 449.

Allen, C., M. Gasiorek and A. Smith (1996),
"Trade Creation and Trade Diversion due to the SMP", *The Single Market Review Series,* European Commission.

Allsop, C. and D. Vines (1998),
"The Assessment: Macroeconomic Policy after EMU", *Oxford Review of Economic Policy,* Vol. 14, No. 3.

Angeloni, I., L. Buttiglione, G. Ferri and E. Gaiotti (1995),
"The Credit Channel of Monetary Policy Across Heterogeneous Banks: The Case of Italy", Banca d'Italia, *Temi di Discussione,* No. 256.

Antolin, P. and O. Bover (1993),
"Regional Migration in Spain: The Effect of Personal Characteristics and of Unemployment, Wage and House Price Differentials Using Pooled Cross-Sections", Bank of Spain, *Working Paper* No. 9318.

Artis, M. *et al.* (1998),
"Trade and the Number of Optimum Currency Areas in the World", *CEPR Discussion Paper,* No. 1926.

Asdrubali, P. *et al.* (1996),
"Channels of Interstate Risk Sharing: United States 1963-1990", *Quarterly Journal of Economics,* Vol. 111.

Bacchetta, P. and E. van Wincoop (1998),
"Does Exchange Rate Stability Increase Trade and Capital Flows?", *CEPR Discussion Paper,* No. 1962.

Balassa, B. (1964),
"The Purchasing Power Parity Doctrine: A Reappraisal", *Journal of Political Economy,* Vol. 72.

Ballabriga, F. *et al.* (1993),
"Interdependence of EC Economies: A VAR Approach", Bank of Spain, *Working Paper* No. 9314.

Bank for International Settlements (1995),
Financial Structure and the Monetary Policy Transmission Mechanism, BIS, Basle.

Bank for International Settlements (1996),
The Determination of Long-Term Interest Rates and Exchange Rates and the Role of Expectations, Conference Papers, Vol. II.

Bank for International Settlements, (1997),
Annual Report.

Bank for International Settlements (1998),
Annual Report.

Barran, F., V. Coudert and B. Mojon (1996),
"The Transmission of Monetary Policy in the European Countries", *CEPII Working Paper,* No. 96-03.

Barro, R. and X. Sala-i-Martin (1995),
"Convergence Across States and Regions", *Brookings Papers on Economic Activity,* No. 1.

Bayoumi, T. and B. Eichengreen (1993),
"Shocking Aspects of European Monetary Unification", in F. Torres and F. Giavazzi (eds.), *Adjustment and Growth in the European Monetary Union,* Cambridge University Press, Cambridge.

Bayoumi, T. and P.R. Masson (1995),
"Fiscal Flows in the United States and Canada: Lessons for Monetary Union in Europe", *European Economic Review,* Vol. 39, No. 2.

Bayoumi, T. and A. Thomas (1995),
"Relative Prices and Economic Adjustment in the United States and the European Union: A Real Story About EMU", *IMF Staff Papers,* Vol. 42, No. 1.

Bayoumi, T. and B. Eichengreen (1996),
"Operationalising the Theory of Optimum Currency Areas", *CEPR Discussion Paper,* No. 1484.

Bayoumi, T. and E. Prasad (1996),
"Currency Unions, Economic Fluctuations and Adjustment: Some New Empirical Evidence", *IMF Working Paper,* No. 81.

Bayoumi, T. and M. Klein (1997),
"A Provincial View of Economic Integration", *IMF Staff Papers,* Vol. 44, No. 4.

Bayoumi, T. and P.R. Masson (1998),
"Liability-Creating *versus* Non-Liability-Creating Fiscal Stabilization Policies: Ricardian Equivalence, Fiscal Stabilization and EMU", *Economic Journal,* Vol. 108.

Bayoumi, T. and R. MacDonald (1998),
"Deviations of Exchange Rates from Purchasing Power Parity: A Story Featuring Two Monetary Unions", *CEPR Discussion Paper,* No. 1932.

Bean, C. (1994),
"European Unemployment: A Survey", *Journal of Economic Literature,* Vol. 32, No. 2.

Bean, C. *et al.* (1998),
Social Europe: One for All, Centre for Economic Policy Research, Monitoring European Integration, No. 8.

Beatson, M. (1995),
"Labour Market Flexibility", UK Employment Department, *Research Series* No. 48.

Bentolila, S. and J. Dolado (1991),
"Mismatch and Internal Migration in Spain, 1962-1986", in F. Padoa Schioppa (ed.), *Mismatch and Labour Mobility*, Cambridge University Press.

Bentolila, S. (1997),
"Sticky Labor in Spanish Regions", *European Economic Review*, Vol. 41, No. 3.

Bergman, M. (1996),
"International Evidence on the Sources of Macroeconomic Fluctuations", *European Economic Review*, Vol. 40, No. 6.

Berlage, L. and D. Terweduwe (1988),
"The Classification of Countries by Cluster and Factor Analysis", World Development, Vol. 16, No. 12.

Bernanke, B.S. (1986),
"Alternative Explanations of the Money Income Correlation," *Carnegie-Rochester Conference Series on Public Policy*, Vol. 25.

Bernanke, B.S. and A. Blinder (1990),
"The Federal Funds Rate and the Channels of Monetary Transmission", *NBER Working Paper*, No. 3487, Cambridge, MA.

Bernanke, B.S. and M. Gertler (1995),
"The Credit Channel of Monetary Policy Transmission", *NBER Working Paper*, No. 5146.

Bini Smaghi, L. and S. Vori (1993),
"Rating the EC as an Optimal Currency Area", Banca d'Italia, Temi di Discussione, No. 187, Rome.

Blanchard, O.J. and M.W. Watson (1986),
"Are Business Cycles All Alike?", in R.J. Gordon (ed)., The American Business Cycle: Continuity and Change, *NBER Studies in Business Cycles*, Vol. 25, University of Chicago Press, Chicago.

Blanchard, O.J. and D. Quah (1989),
"The Dynamic Effect of Aggregate Demand and Supply Disturbances", *American Economic Review*, Vol. 79, No. 4.

Blanchard, O. (1990),
"Suggestions for a New Set of Fiscal Indicators", *OECD Department of Economics and Statistics Working Paper*, No. 79.

Blanchard, O., J.-C. Chouraqui, R.P. Hagemann and N. Sartor (1990),
"The Sustainability of Fiscal Policy: New Answers to an Old Question", *OECD Economic Studies*, No. 15.

Blanchard, O. and L. Katz (1992),
"Regional Evolutions", *Brookings Papers on Economic Activity*, No. 1.

Blanchard, O. and L. Katz (1996),
"What We Know and Do Not Know About the Natural Rate of Unemployment", *NBER Working Paper*, No. 5822.

Blanchflower, D. and A. Oswald (1995),
"An Introduction to the Wage Curve", *Journal of Economic Perspectives*, Vol. 9, No. 3.

Bolderson, H. and F. Gains (1994),
"Comparison of Arrangements for Exporting Benefits Relating to Age, Disability and Widowhood in Twelve OECD Countries", in *Migration: A World-Wide Challenge for Social*

Security, International Social Security Association, Studies and Research No. 35, Geneva.

Bondt, G.J. de (1998),
"Credit and Asymmetric Effects of Monetary Policy in Six EU Countries: An Overview", *De Nederlandsche Bank Staff Reports*, No. 23.

Borio, C.E.V. (1997),
"Monetary Policy Operating Procedures in Industrial Countries", *BIS Working Paper* No. 40.

Brayton, F. *et al.* (1997),
"The Role of Expectations in the FRB/US Macroeconomic Model", *Federal Reserve Bulletin*, Vol. 83, No. 4.

Briault, C.B. *et al.* (1995),
"Independence and Accountability", Paper prepared for the Seventh International Conference of the Institute for Monetary and Economic Studies at the Bank of Japan, 26-27 October.

Britton, E. and J. Whitley (1997),
"Comparing the Monetary Transmission Mechanism in France, Germany and the United Kingdom: Some Issues and Results", Bank of England *Quarterly Bulletin*, Vol. 37, No. 2.

Brown, D.K., A.V. Deardorff and R.M. Stern (1996),
"International Labour Standards and Trade: A Theoretical Analysis", in J. Bhagwati, and R.E. Huden (eds.), *Fair Trade and Harmonization*, Vol. 1, The MIT Press.

Buiter, W.H. (1998),
"Independence of the ECB likely to be perverted if council voting is secret", Letter to the Editor of the *Financial Times*, September 24.

Buti, M., D. Franco and H. Ongena (1997),
"Budgeting Policies During Recessions – Retrospective Application of the Stability and Growth Pact to the Post-War Period", European Commission, *Economic Papers*, No. 121.

Buti, M., D. Franco and H. Ongena (1998),
"Fiscal Discipline and Flexibility in EMU: The Implementation of the Stability and Growth Pact", *Oxford Review of Economic Policy*, Autumn.

Buti, M. and A. Sapir (eds.) (1998),
Economic Policy in EMU – A Study by the European Commission Services, Oxford University Press.

Buttiglione, L., P. Del Giovane and O. Tristani (1997),
"The Role of the Different Central Bank Rates in the Transmission of Monetary Policy", Banca d'Italia, Temi di Discussione, No. 305.

Calmfors, L. and J. Driffill (1988),
"Bargaining Structure, Corporatism and Macroeconomic Performance", *Economic Policy*, Vol. 6.

Cameron, G. and J. Muellbauer (1998),
"The Housing Market and Regional Commuting and Migration Choices", *Scottish Journal of Political Economy*, Vol. 45, No. 4.

Candelon, B. and E. Cudeville (1997),
"Politique monétaire et canal du crédit : une estimation empirique sur l'économie française", *Revue d'Économie Politique*, Vol. 107, No. 6.

Cangiano, M. and E. Mottu (1998),
"Will Fiscal Policy be Effective Under EMU", IMF Working Paper WP/98/76.

Carlino, G. and R. DeFina (1995),
"The Differential Effects of Monetary Policy Shocks on Regional Economic Activity", Federal Reserve Bank of Philadelphia, *Working Paper*, No. 95-15.

Cecchetti, S.G., N.C. Mark and R. Sonora (1998),
"Pricel Level Convergence Among United States Cities: Lessons for the European Central Bank", paper presented at the CEPR Workshop *Real exchange rates: Recent Theories and Evidence*, Vienna, April 3/4, Forthcoming in *Journal of International Economics.*

CEPII (1996),
"Trade Patterns Inside the Single Market", Study for the European Commission.

Clarida, R., J. Gali and M. Gertler (1997),
"Monetary Policy Rules in Practice: Some International Evidence", *NBER Working Paper*, No. W6254.

Cohen, D. and C. Wyplosz (1989),
"The European Monetary Union: An Agnostic Evaluation", CEPR Discussion Paper, No. 306.

Cooley, T.F. and S.F. Leroy (1985),
"A Theoretical Macroeconometrics: A Critique", *Journal of Monetary Economics*, Vol. 16, No. 3.

Cordella, T. and I. Grilo (1998),
"'Social Dumping' and Relocation: Is there a Case for Imposing a Social Clause?", *CEPR Discussion Paper*, No. 1931.

Corsetti, G. and N. Roubini (1993),
"Tax Smoothing Discretion versus Balanced Budget Rules in the Presence of Politically Motivated Fiscal Deficits: The Design of Optimal Fiscal Rules for Europe after 1992", *CEPR Discussion Paper*, No. 682.

Cory, D. (ed.) (1996),
"Economics and European Migration Policy", Institute for Public Policy Research.

Dalsgaard, T. and A. De Serres (1999),
"Estimating Prudent Budgetary Margins to Comply with the Stability and Growth Pact: A Simulated SVAR Model Approach", *OECD Economics Department Working Paper*, forthcoming.

Davis, E.P. (1995),
Pension Funds, Retirement Income Security and Capital Markets: An International Perspective, Clarendon Press, Oxford.

Daykin, C. (1998),
"Complementary Pensions in the European Union", *Economic Affairs*, Vol. 18, No. 1.

Debelle, G. and J. Vickery (1998),
"Labor Market Adjustment: Evidence on Interstate Labour Mobility", Reserve Bank of Australia, *Research Discussion Paper*, No. 9801.

Decressin, J. and A. Fatas (1995),
"Regional Labour Market Dynamics in Europe", *European Economic Review*, Vol. 39.

De Nardis, S., A Goglio and M. Malgarini (1996),
"Regional Specialization and Shocks in Europe: Some Evidence from Regional Data", *Weltwirtschaftliches Archiv*, Vol. 132, No. 2.

De Serres, A. and R. Lalonde (1995),
"Les sources des fluctuations des taux de change en Europe et leurs implications pour l'Union Monétaire", *Recherches Économiques de Louvain,* Vol. 61, No. 1.

Deutsche Bundesbank (1995),
The Monetary Policy of the Bundesbank, Frankfurt-am-Main.

Dohse, D. and C. Krieger-Boden (1998),
Wahrungsunion und Arbeitsmarkt, Kiel Institute, Kieler Studien 290, Berlin.

Dornbusch, R., C. Favero and F. Giavazzi (1998),
"Immediate Challenges for the European Central Bank", in Begg *et al.* (eds.), *EMU, Prospects and Challenges for the Euro,* Blackwell Publishers, Oxford.

Duisenberg, W.F. (1998),
"Hearing of Mr. Duisenberg, President of the European Central Bank, at the Committee on Economics and Monetary Affairs and Industrial Policy of the European Parliament", 7-8 May.

ECB (1999),
Monthly Bulletin, January.

Eichengreen, B. (1990),
"Is Europe An Optimal Currency Area?", *CEPR Discussion Paper,* No. 478.

Eichengreen, B. (1993),
"Labour Markets and European Monetary Unification", in P.R. Masson and M.P. Taylor (eds.) *Policy Issues in the Operation of Currency Unions,* Cambridge University Press, Cambridge.

Eichengreen, B. and C. Wyplosz (1998),
"The Stability Pact: More Than a Minor Nuisance?", in Begg *et al.* (eds.), *EMU: Prospects and Challenges for the Euro,* Blackwell Publishers, Oxford.

Englander, S. and T. Egebo (1993),
"Adjustment under Fixed Exchange Rates: Application to the European Monetary Union", *OECD Economic Studies,* Vol. 20.

Estrella, A. and G. Hardouvelis (1991),
"The Term Structure as a Predictor of Real Economic Activity", *Journal of Finance,* Vol. 46, No. 2.

European Commission (1977),
Report of the Study Group on the Role of Public Finance in European Integration (MacDougall Report).

European Commission (1979),
Report of the Study Group on the Economic Effects of Budget and Financial Transfers in the Community, (Forte Report).

European Commission (1990),
"One Market, One Money", *European Economy,* No. 44.

European Commission (1992),
Maastricht Treaty on European Union.

European Commission (1993),
"The Economics of Community Public Finance", *European Economy – Reports and Studies,* No. 5.

European Commission (1994),
Employment in Europe, Commission of the European Communities, Luxembourg.

European Commission (1996*a*),
"Economic Evaluation of the Internal Market", *European Economy – Reports and Studies*, No. 4.

European Commission (1996*b*),
Green Paper on Education, Training and Research: Obstacles to Transnational Mobility, COM(96) 462 final.

European Commission (1996*c*),
A Green Paper on Supplementary Pensions in the Single Market, Brussels.

European Commission (1996*d*),
"The 1996 Single Market Review", SEC(96)2378, Brussels.

European Commission (1998),
Commission's Recommendation for the Broad Guidelines of the Economic Policies of member States and the Community, May, Brussels.

European Monetary Institute (1997*a*),
The Single Monetary Policy in Stage Three – Specification of the Operational Framework, Frankfurt a.M., January.

European Monetary Institute (1997*b*),
The Single Monetary Policy in Stage Three – Elements of the Monetary Policy Strategy of the ESCB, Frankfurt a.M., February.

European Monetary Institute (1998),
Convergence Report, March.

Eurostat (1997*a*),
Eurostat Yearbook 1997, Luxembourg.

Eurostat (1997*b*),
Region Statistics Yearbook, Luxembourg.

Fagan, G. and J. Henry (1998),
"Long Run Money Demand in the EU: Evidence for Area-wide Aggregates", *Empirical Economics*, Vol. 23.

Faini, R. (1996),
"European Migrants: An Endangered Species?" Universita di Brescia, paper prepared for the MIRAGE Conference "Regional Integration", La Coruna, 26-27 April.

Faini, R. *et al.* (1997),
"An Empirical Puzzle: Falling Migration and Growing Unemployment Differentials Among Italian Regions", *European Economic Review*, Vol. 41.

Fatas, A. (1997),
"EMU: Countries or Regions? Lessons from the EMS Experience", *European Economic Review*, Vol. 41, No. 3-5.

Fischer, P. *et al.* (1998),
"Why Do People Stay? The Insider Advantages Approach: Empirical Evidence From Swedish Labour Markets", *CEPR Discussion Paper*, No. 1952.

Flandreau, M. (1995),
"Was the Latin Monetary Union a Franc Zone?", in J. Reis (ed.), *International Monetary Systems in Historical Perspective*, Macmillan Press, London.

Forder, J. (1998),
"Central Bank Independence – Conceptual Clarifications and Interim Assessment", *Oxford Economic Papers*, Vol. 50, No. 3.

Forni, M. and L. Reichlin (1997),
"National Policies and Local Economies: Europe and the United States", *CEPR Discussion Paper,* No. 1632.

Franco, D. and T. Munzi (1997),
"Ageing and Fiscal Policies in the European Union", European Commission, *European Economy – Reports and Studies,* No. 4.

French, K. and J. Poterba (1991),
"International Diversification and International Equity Markets", *American Economic Review,* Vol. 82, No. 2.

Funke, M., S. Hall and R. Ruhwedel (1997),
"Shock-Hunting: The Relative Importance of Industry-Specific, Region-Specific and Aggregate Shocks in OECD Countries", Centre of Economic Forecasting, *Discussion Paper,* No. 14-97, London Business School.

Funke, N. and M. Kennedy (1997),
"International Implications of European Economic and Monetary Union", *OECD Economics Department Working Paper,* No. 174.

Gagnon, J.E. (1997),
"Inflation Regimes and Inflation Expectations", Board of Governors of the Federal Reserve System, *International Finance Discussion Papers,* No. 581.

Gerlach, S. and F. Smets (1995),
"The Monetary Transmission: Evidence from G-7 Countries", *CEPR Discussion Paper,* No. 1219.

Gerlach, S. and G. Schnabel (1998),
"The Taylor Rule and Average Interest Rates in the EMU-11 Area: A Note", mimeo, Bank for International Settlements.

Ghatak, S., P. Levine and S. Price (1996),
"Migration Theories and Evidence: An Assessment", *Journal of Economic Surveys,* Vol. 10, No. 2.

Gildea, J. (1992),
"The Regional Representation of Federal Reserve Bank Presidents", *Journal of Money, Credit and Banking,* Vol. 24, No. 2.

Goodhart, C.A.E. and S. Smith (1993),
"Stabilisation", *European Economy, Reports and Studies.*

Grauwe, P. de and H. Heens (1991),
"Real Exchange Rate Variability in Monetary Unions", *International Economics Research Paper* No. 87, Catholic University of Leuven, Leuven.

Grauwe, P. de (1993),
"Discussion", in F. Torres and F. Giavazzi (eds.), *Adjustment and Growth in the European Monetary Union,* Cambridge.

Grauwe, P. de and W. Vanhaverbeke (1993),
"Is Europe an Optimum Currency Area? Evidence from Regional Data", in P.R. Masson and M.P. Taylor (eds.), *Policy Issues in the Operation of Currency Unions,* Cambridge University Press, Cambridge.

Griffin, G., J. Knight and S. Wood, (1992),
"The Bristol Labour Market", UK Employment Department *Research Paper* No. 82.

Gros, D., G. Tabellini and N. Thygersen (1998),
"The European Central Bank: Problems and Perspectives", EMU Net www.euro-emu.co.uk, September.

Hadjimichael, M. and M. Galy (1997),
"The CFA Franc Zone and the EMU", *IMF Working Paper,* No. 156.

Hagen, J. von (1992),
"Budgeting Procedures and Fiscal Performance in the EC", European Commission, *Economic Paper,* No. 96.

Hagen, J. von (1994), "Social Security and Migration in an Ageing Europe", *CEPR Discussion Paper,* No. 1022.

Hagen, J. von and B. Eichengreen (1996),
"Federalism, Fiscal Restraints and European Monetary Union", *American Economic Review,* Vol. 86, No. 2.

Hagen, J. von (1998),
"Regional Insurance Against Asymmetric Shocks: An Empirical Study for the European Community", *The Manchester School,* Vol. 66, No. 3.

Harvey, C. (1991),
"The Term Structure and World Economic Growth", *Journal of Fixed Income No. 1.*

Havrilesky, T. and J. Gildea (1992),
"Reliable and Unreliable Partisan Appointees to the Board of Governors", *Public Choice,* Vol. 73, No. 4.

Havrilesky T. and J. Gildea (1995),
"The Biases of Federal Reserve Bank Presidents", *Economic Inquiry,* Vol. 33, No. 2.

Heidhues, F. and H. Michelsen (1995),
"Structural Adjustments in a Monetary Union – Some Considerations about the West African Franc Zone", in F.P Lang and R. Ohr (eds.), *International Economic Integration,* Studies in Contemporary Economics, Physica, Heidelberg.

Helg, R. *et al.* (1995),
"How Much (A)symmetry in Europe? Evidence from Industrial Sectors", *European Economic Review,* Vol. 39.

Helliwell, J. (1996),
"Do National Borders Matter for Quebec's Trade?", *Canadian Journal of Economics,* Vol. 29, No. 3.

Helliwell, J. (1997),
"National Borders, Trade and Migration", *Pacific Economic Review,* Vol. 2, No. 3.

Helliwell, J. and R. McKitrick (1998),
"Comparing Capital Mobility Across Provincial and National Borders", *NBER Working Paper,* No. 6624.

Henriksen, I. and N. Kaergard (1995),
"The Scandinavian Currency Union 1875-1914", in J. Reis (ed.), *International Monetary Systems in Historical Perspective,* Macmillan Press, London.

HM Treasury (1997),
UK Membership of the Single Currency: An Assessment of the Five Economic Tests, Pillans and Wilson Greenaway, London.

Hoeller, P., M.-O. Louppe and P. Vergriete (1996),
"Fiscal Relations Within the European Union", *OECD Economics Department Working Paper,* No. 163.

Hofer, H., K. Pichelman and A.U. Schuh (1998),
"Price and Quantity Adjustments in the Austrian Labour Market", *Economic Series,* No. 57, Institute for Advanced Studies, Vienna.

Holtferich, C. (1989),
"The Monetary Unification Process in Nineteenth-Century Germany: Relevance and Lessons for Europe Today", in M. De Cecco and A. Giovannini (eds.), *A European Central Bank?,* Cambridge University Press, Cambridge.

Hughes, G. and B. McCormick (1981),
"Do Council Housing Policies Reduce Migration Between Regions", *Economic Journal,* Vol. 91.

Hughes, G. and B. McCormick (1993),
"Did Migration in the 1980s Narrow the North-South Divide?", *Economica,* Vol. 61.

IFO Institute (1996),
"Currency Management Costs", *The Single Market Review,* Vol. 3, No. 6.

International Monetary Fund (1998),
World Economic Outlook, September.

Issing, O. (1992),
"Theoretical and Empirical Foundations of the Bundesbank's Monetary Targeting", *Intereconomics,* November/December.

Issing, O. (1997),
"Monetary Targeting in Germany: The Stability of Monetary Policy and of the Monetary System", *Journal of Monetary Economics,* Vol. 39.

Italianer, A. and M. Vanheukelen (1993),
"Proposals for Community Stabilisation Mechanisms: Some Historical Applications", in *European Economy, The Economics of Community Public Finance,* No. 5.

Jackman, R. and S. Savouri (1992),
"Regional Migration in Britain: An Analysis of Gross Flows Using NHS Central Register Data", *Economic Journal,* Vol. 102.

Karras, G. (1994),
"Sources of Business Cycles in Europe 1960-1988. Evidence from France, Germany and the United Kingdom", *European Economic Review,* Vol. 38.

Kiel Institute of World Economics (1998),
"Euroland: New Conditions for Economic Policy", 58th Kieler Konjunkturgesprach, 28-29 September.

Kieler, M. and T. Saarenheimo (1998),
"Differences in Monetary Policy Transmission? A Case not Closed", Paper presented at the Conference on Monetary Policy of the ESCB, Università Bocconi, Milano.

Kilpatrick, S. and B. Felmingham (1996),
"Labour Mobility in the Australian Regions", *The Economic Record,* Vol. 72.

Kim, S. (1997),
"Economic Integration and Convergence: US Regions, 1840-1987", *NBER Working Paper,* No. 6335.

Kloten, N. (1995),
"The German Currency Union: Challenges for Both Parts of Germany" in S. Frowen and J. Hölscher (eds.), *The German Currency Union of 1990: A Critical Assessment,* St. Martin's Press, New York.

Kohler, P. (1994),
"Social Security for People with Disabilities in the EC: Different Regulations – Similar Goals?" in "Migration: A World-Wide Challenge for Social Security", International Social Security Association, *Studies and Research* No. 35, Geneva.

Krugman, P. (1991*a*),
"Increasing Returns and Economic Geography", *Journal of Political Economy,* Vol. 99, No. 3.

Krugman, P. (1991*b*),
Geography and Trade, MIT Press, Cambridge.

Krugman, P. (1993),
"Lessons from Massachusetts for EMU", in F. Torres and F. Giavazzi (eds.), *Adjustment and Growth in the European Monetary Union,* Cambridge University Press, Cambridge.

Langer-Stein, R. (1994),
"EC Co-ordination: Overcoming Obstacles in Social Security for Migrants", in "Migration: A World-Wide Challenge for Social Security", International Social Security Association, *Studies and Research* No. 35, Geneva.

Layard, R.G., S.J. Nickell and R.A. Jackman (1991),
Unemployment: Macroeconomic Peformance and the Labour Market, Oxford University Press, Oxford.

Leibfritz, W., D. Roseveare, D. Fore and E. Wurzel (1995),
"Ageing Populations, Pension Systems and Government Budgets: How do They Affect Savings", *OECD Economics Department Working Paper* No. 156.

London Economics (1996),
Single Market Review 1996: Competition Issues, European Commission.

Lucifora, C. and F. Origo (1998),
"Wage Differentials and Unemployment in Italy: A Regional Perspective", Paper presented at the Workshop on *Unemployment in Europe,* 23-24 October 1998, DIW Institute, Berlin.

Martin, J. (1996),
"Measures of Replacement Rates for the Purpose of International Comparisons: A Note", *OECD Economic Studies,* No. 26.

Masson, P.R. and B.G. Turtelboom (1997),
"Characteristics of tbe Euro, the Demand for Reserves, and Policy Co-ordination Under EMU", *IMF Working Paper* No. 97/58.

Mauro, P. and N. Sobczak (1998),
"Persistent Geographic Unemployment Differences and the Wage Bargaining System", IMF, Spain Article IV Consultation, *Selected Issues Background paper.*

McCallum, J. (1995),
"National Borders, Trade and Migration", *Pacific Economic Review,* Vol. 2, No. 3.

McCauley, R.N. and R.W. White (1997),
"The Euro and European Financial Markets", in P.R. Masson, T.H. Krueger and B.G. Turtelboom (eds.), *EMU and the International Financial System,* IMF, Washington, DC.

McCormick, B. (1997),
"Regional Unemployment and Labour Mobility in the UK", *European Economic Review,* Vol. 41, No. 3-5.

McGregor, R. (1996),
"FOMC Voting Behaviour and Electoral Cycles: Partisan Ideology and Partisan Loyalty", *Economics and Politics,* Vol. 8, No. 1.

Meadows, P., R. Bartholomew and H. Cooper, (1988),
The London Labour Market, HMSO, London.

Meerhaeghe, M. van (1995),
"The Belgium-Luxembourg Economic Union", in F.P Lang and R. Ohr (eds.), *International Economic Integration, Studies in Contemporary Economics,* Physical, Heidelberg.

Melitz, J. and A. Weber (1996),
"The Costs/Benefits of a Common Monetary Policy in France and Germany and Possible Lessons for Monetary Union", *CEPR Discussion Paper,* No. 1374.

Ministry of Finance (1995),
"Policy Implications of the Ageing Population in Denmark", *Working Paper* No. 4, Denmark.

Miron, J. (1989),
"The Founding of the Federal Reserve and the Destabilisation of the Post-1914 US Economy", in M. De Cecco and A. Giovannini (eds.), *A European Central Bank?,* Cambridge University Press, Cambridge.

Molle, W. and Mourik, A. van (1988),
"International Movements of Labour under Conditions of Economic Integration: The Case of Western Europe", *Journal of Common Market Studies,* Vol. 26, No. 3.

Molle, W. and Mourik, A. van (1989),
"A Static Explanatory Model of International Labour Migration to and in Western Europe", in I. Gordon and A. Thirlwall (eds.), *European Factor Mobility: Trends and Consequences,* Macmillan, London.

Monticelli, C. and M. Strauss-Kahn (1992),
"European Integration and the Demand for Broad Money", *BIS Working Paper,* No. 8.

Monticelli, C. and L. Papi, (1996),
European Integration Monetary Co-ordination and the Demand for Money, Clarendon Press, Oxford.

Morgan, J.P. (1998),
EMU and Euro-Central Bank Assets, May.

Mundell, R. (1961),
"A Theory of Optimum Currency Areas", *American Economic Review,* Vol. 51.

Mundell, R. (1998),
"The Impact of the Euro on the International Monetary System", *The International Spectator,* Vol. 33, No. 2.

Neven, D. and C. Gouyette (1994),
"Regional Convergence in the European Community", *CEPR Discussion Paper,* No. 914.

Nickell, S. (1997),
"Unemployment and Labour Market Rigidities: Europe *versus* North America", *Journal of Economic Perspectives,* Vol. 11, No. 3.

Oates, W.E. (1972),
Fiscal Federalism, Harcourt Brace and Jovanovich, New York.

Obstfeld, M. and G. Peri (1998),
"Regional Non-adjustment and Fiscal Policy", in D. Begg *et al.* (eds.), *EMU: Propects and Challenges for the Euro,* Blackwell Publishers, Oxford.

OECD (1989),
Employment Outlook.

OECD (1990),
Employment Outlook.

OECD (1993),
Employment Outlook.

OECD (1994),
The OECD Jobs Study.

OECD (1996*a*),
Employment Outlook.

OECD (1996*b*),
Trade, Employment and Labour Standards. A Study of Core Worker's Rights and International Trade.

OECD (1997*a*),
Implementing the OECD Job Strategy.

OECD (1997*b*),
Economic Outlook No. 61.

OECD (1997*c*),
Employment Outlook.

OECD (1997*d*),
Economic Outlook No. 62.

OECD (1998*a*),
Economic Outlook No. 64.

OECD (1998*b*),
Financial Market Trends, 70, June, Paris.

OECD (1998*c*),
Maintaining Prosperity in an Ageing Society.

OECD (1998*d*),
Economic Survey of Germany.

OECD (1998*e*),
Spotlight on Public Support to Industry, Paris.

OECD (1998*f*),
Employment Outlook.

OECD (1999),
Economic Survey of Denmark.

Office of Fair Trading (1997),
Report of the Director General's Inquiry into Pensions.

Oliveira-Martins, J., S. Scarpetta and D. Pilat (1996),
"Mark-Up Ratios in Manufacturing Industries: Estimates for 14 OECD Countries", *OECD Economics Department Working Paper,* No. 162.

Osberg, L. *et al.* (1994),
"Interregional Migration and Interindustry Labour Mobility in Canada: A Simultaneous Approach", *Canadian Journal of Economics*, Vol. 27.

Oswald, A. (1996),
"A Conjecture on the Explanation for High Unemployment in the Industrialised Nations: Part 1", *Warwick University Economic Research Paper*, No. 475.

Padoa Schioppa, F. (ed.) (1991),
Mismatch and Labour Mobility, Cambridge University Press, Cambridge.

Pestiau, P. (1992),
"The Distribution of Private Pension Benefits: How Fair is It?" in OECD, *Private Pensions and Public Policy*, Paris.

Pigott, C. and H. Christiansen (1998),
"Monetary Policy When Inflation is Low", *OECD Economics Department Working Papers*, No. 191.

Pisani-Ferry, J., A. Italianer, and R. Lescure (1993),
"Stabilisation Properties of Budgetary Systems: A Simulation Analysis", European Commission, *European Economy – Reports and Studies*.

Pissarides, C. and J. Wadsworth (1989),
"Unemployment and the Inter-Regional Mobility of Labour", *Economic Journal*, Vol. 99.

Ploeg, F. van der (1989),
"Fiscal Aspects of Monetary Integration in Europe", *CEPR Discussion Paper*, No. 340.

Poloz, S. (1990),
"Real Exchange Rate Adjustment between Regions in a Common Currency Area", mimeo, Bank of Canada.

Portes, R. and H. Rey (1998),
"The Emergence of the Euro as an International Currency", in D. Begg *et al.* (eds.), *EMU: Propects and Challenges for the Euro*, Blackwell Publishers, Oxford.

Razin, A. and C. Yuen (1996),
"Labour Mobility and Fiscal Co-ordination: Setting Growth Agenda for an Economic Union", *CEPR Discussion Paper*, No. 1342.

Rich, G. (1998),
"Inflation and Money Stock Targets: Is there Really a Difference?", paper presented at the International Conference on *The Conduct of Monetary Policy*, China, June.

Roeger, W. and J. int'Veld (1997),
"QUEST II: A Multi Country Business Cycle and Growth Model", *European Commission Economic Papers*, No. 123.

Ryan, M. (1995),
"What Future for Payroll Taxes in Australia?", *Treasury Research Paper*, No. 10.

Sachs, J. and X. Sala-i-Martin (1992),
"Fiscal Federalism and Optimum Currency Areas: Evidence for Europe from the United States", in M.B. Canzoneri, V. Grilli and P.R. Masson (eds.), *Establishing a Central Bank: Issues in Europe and Lessons from the US*, Cambridge University Press, Cambridge.

Salt, J. (1997),
"International Movements of the Highly Skilled", OECD International Migration Unit, *Occasional Paper*, No. 3.

Samuelson, P.A. (1964),
"The Purchasing Power Puzzle: A Reappraisal", *Journal of Economic Literature,* Vol. 34.

Sannucci, V. (1989),
"The Establishment of a Central Bank: Italy in the Nineteenth Century", in M. De Cecco and A. Giovannini (eds.), *A European Central Bank?,* Cambridge University Press, Cambridge.

Santiago, C. (1993),
"The Migratory Impact of Minimum Wage Legislation: Puerto Rico, 1970-1987", *International Migration Review,* Vol. 27, No. 4.

Sapir, A. (1996),
"Trade Liberalisation and the Harmonization of Social Policies: Lessons from European Integration", in J. Bhagwati and R.E. Hudec (eds.), *Fair Trade and Harmonisation,* Vol. 1, MIT Press.

Scarpetta, S. (1996),
"Assessing the Role of Labour Market Policies and Institutional Settings on Unemployment: A Cross Country Study", *OECD Economic Studies,* No. 26.

Scobie, H.M. and T. Day (1996),
"Fiscal Transfer Payments: Implications of US Structure for tbe European Monetary Union", *Economic and Financial Review,* Vol. 3, Part 4.

Sims, C.A. (1986),
"Are Forecasting Models Usable for Policy Analysis?", *Federal Reserve Bank of Minneapolis Quarterly Review* 10, Winter.

Sinn, H. (1998),
"European Integration and the Future of the Welfare State", *CEPR Discussion Paper,* No. 1871.

Siviero, S., D. Terlizzese and I. Visco (1997),
"Are Model-Based Inflation Forecasts Used in Monetary Policy Making? A Case Study", Banca d'Italia, *Temi di Discussione,* forthcoming.

Stöss, E. (1996),
"Die Finanzierungsstruktur der Unternehmen und deren Reaktion auf monetäre Impulse", Deutsche Bundesbank, *Diskussionspapier 9/96.*

Svensson, L.E. (1998),
"Inflation Targeting as a Monetary Policy Rule", *NBER Working Paper,* No. W6790.

Taylor, J.B. (1993),
"Discretion *versus* Policy Rules in Practice", *Carnegie Rochester Conference Series on Public Policy,* No. 39.

Thomas, A. (1993),
"The Influence of Wages and House Prices on British Interregional Migration Decisions", *Applied Economics,* Vol. 25, No. 9.

Thomas, A. (1994),
"The Response of Wages and Labor Supply Movements to Employment Shocks Across Europe and the United States", *IMF Working Paper,* No. 94/158.

Tiebout, C.M. (1956),
"A Pure Theory of Local Expenditures", *Journal of Political Economy,* Vol. 64.

Tober, S. (1995),
"Monetary Reform and Monetary Union: A Comparison Between 1948 and 1990", in

S. Frowen and J. Hölscher (eds.), *The German Currency Union of 1990: A Critical Assessment,* St. Martin's Press, New York.

Tootell, G.M.B. (1991),
"Regional Economic Conditions and the FOMC Votes of District Presidents", *New England Economic Review.*

Tootell, G.M.B. (1996),
"Appointment Procedures and FOMC Voting Behaviour", *Southern Economic Journal,* Vol. 63, No. 1.

Turner, John A. and W. Noriyasu (1995),
Private pension policies in industrialized countries: A comparative Analysis, W.E Upjohn Institute For Employment Research, Kalamazoo, Michigan.

UNESCO,
Statistical Yearbook, various issues, Paris.

US Census Bureau (1998),
Current Population Report – Geographical Mobility: March 1996 to March 1997, Washington, DC.

Veil, S. *et al.* (1997),
Report of the High Level Panel on the Free Movement of Persons, European Commission.

Vinals, J. and J.F. Gimeno (1996),
"Monetary Union and European Unemployment", Banco de Espana, *Working Paper,* No. 9624.

Visco, I. (1995),
"Inflation, Inflation Targeting and Monetary Policy: Notes for Discussion on the Italian Experience", in L. Leiderman and L.E.O. Svensson (eds.), *Inflation Targets,* Centre for Economic Policy Research, London.

Visco, I. (1998),
"Should Economic Policies be co-ordinated for EMU?", *OECD Observer,* No. 215.

Ward, J. (1963),
"Hierachial Grouping to Optimise an Objective Function", *Journal of American Statistical Association,* Vol. 58.

White, W.R. (1998),
"The Coming Transformation of Continental European Banking?", *BIS Working Papers,* No. 54.

Williamson, J. (1994),
"Estimates of FEERs", in J. Williamson (ed.), *Estimating Equilibrium Exchange Rates,* Institute for International Economics, Washington, DC.

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Annex I

The position of the EU "outs" towards joining the Monetary Union

Four EU countries were not founding members of the euro area. These countries are Denmark, Greece, Sweden and the United Kingdom. The United Kingdom and Denmark obtained an opt-out from participation in stage 3 of EMU and thus no formal assessment as to whether they satisfied the Maastricht convergence criteria was made. Sweden met the economic convergence criteria, but did not satisfy the conditions related to central bank independence and Greece did not meet the convergence criteria. Sweden and Greece have a derogation from participation in stage 3 of EMU. Denmark, Sweden and the United Kingdom, however, do plan to join the monetary union if given a mandate by their electorate to do so and, in the case of Greece, once the entry conditions are fulfilled. The stated positions of each country *vis-à-vis* monetary union vary, reflecting different emphasis on the political process and entry criteria.

Denmark obtained an opt-out from participation in stage 3 of EMU in December 1992, at the European Council meeting in Edinburgh. The Danish exemption will continue until the Danish population decides otherwise in a new referendum. The Danish government, however, has continued to co-operate within the European Monetary System (EMS), and has reached an agreement with the ESCB on the ERM2, an exchange rate mechanism very close in design to that existing before the launch of the euro. It took effect from 1 January 1999 and entails narrow intervention bands around the parity chosen. Instead of a band of +/–15 per cent, variations should remain within +/–2¼ per cent.

The United Kingdom also obtained an opt-out from participation in the third stage of EMU. While the government considers that joining would be beneficial overall, it decided that membership in the single currency from 1 January 1999 is not in the country's economic interest. The government will judge whether British membership is in the country's economic interest based on five economic tests (HM Treasury, 1997). The tests are formulated around the following questions:

- Are business cycles and economic structures compatible so that the United Kingdom and others could live comfortably with euro interest rates on a permanent basis?
- If problems emerge is there sufficient flexibility to deal with them?
- Would joining EMU create better conditions for firms making long-term decisions to invest in Britain?
- What impact would entry into EMU have on the competitive position of the UK's financial services industry, particularly the City's wholesale markets?
- In summary, will joining EMU promote higher growth, stability and a lasting increase in jobs?

As soon as the government considers that the tests have been passed, the UK's voters would have the final say in a referendum.* A positive response would require stronger central bank independence and participation in ERM2.

Five years later, in December 1997, the Swedish Parliament also decided not to participate in the monetary union from its inception. Sweden has a derogation, but likewise has indicated that entry at a later date should not be excluded. Although the government considers that the economy is sufficiently prepared to join monetary union, the project is viewed above all as political and therefore must have strong popular support, which it has not received so far. After 1 January 1999, if the government finds that Sweden should participate in the monetary union, it will submit the question to a referendum. In the event that a referendum provides the mandate to join, membership in ERM2 will be needed. In the meantime, monetary policy will continue within an inflation-targeting framework.

Greece made significant progress towards qualifying for the third stage of EMU, but did not meet all the Maastricht convergence criteria in 1997. Greece does plan to join the monetary union and has continued to make progress towards macroeconomic convergence. The aim is to meet all the criteria by mid-2000 or earlier and join in 2001. To this end, the government has announced that it will participate in ERM2 from the outset, and legislation granting the Bank of Greece independence has already been passed. Henceforth, the primary objective of the Bank of Greece will be the attainment of price stability. Although price stability has not been defined by legislation, the central bank announced a target CPI inflation rate below 2 per cent by the end of 1999. The Bank of Greece considers that accomplishing this target will be consistent with meeting the Maastricht criteria for inflation in the first months of 2000 as well as the long-term interest rate criterion.

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* The government does not expect this to be the case during the current parliamentary term, which will expire at the latest in spring 2002.

Annex II

A comprehensive data set for the euro area

The OECD regularly aggregates historical data and projections for the European Union and the OECD area and reports them in the Annex Tables of the *OECD Economic Outlook*. The introduction of the euro on the first of January 1999 also makes a complete set of macroeconomic statistics for the euro area essential for macroeconomic analyses of the area. Eurostat and the European Central Bank (ECB) already produce certain national account, inflation, financial and monetary statistics for the euro area. These are available for a relatively short time period, and so far, have only a limited coverage, with few volume series in level terms.[1] In the meantime, for the purpose of analysis, the OECD has compiled annual series, in most cases extending over the past 25 years, for demand and output (volumes, price deflators and values in current price terms), potential output and the implied output gap, the appropriation account for households, the general government appropriation account, the cyclically-adjusted general government account, the labour market, the current account, interest rates, exchange rates and competitiveness indicators.[2]

A number of aggregation methods are possible. For the years from 1999 onwards the approach is straightforward. The value and volume series of the eleven euro area countries can simply be added together after converting the national series to euros.[3] The more difficult aggregation problem lies in the years before 1999, since exchange rates *vis-à-vis* the euro do not exist and the bilateral exchange rates among euro member countries changed over time. Using the exchange rates against the ECU instead to convert is not ideal, as these were influenced by the behaviour of the exchange rates of non-euro area countries, mainly the United Kingdom, and the ECU basket does not include the Finnish markka or the Austrian schilling. To overcome this problem, growth rates for values and volumes for the euro area are calculated as weighted averages of the corresponding growth rates for the eleven member countries, with previous period values expressed in a common currency used as weights. Corresponding level series are constructed on the basis of these growth rates and corresponding 1999 values expressed in euros.[4] This approach was also adopted in order to avoid possible ruptures in series, to obtain appropriate measures of inflation,[5] as well as to avoid the distortions which can result from using fixed weights. For periods where comparisons can be made with other published estimates, the obtained growth rates do not differ significantly.

Notes

1. More information on the Eurostat series, and their method of calculation is available from the internet site: *http://europa.eu.int/en/comm/eurostat/serven/part3/euroind/eur11.htm.*
2. A document describing the methodology and providing some results is available on the OECD internet site (*http://www.oecd.org/eco/data/euroset.htm*). Half-yearly data are available for a limited number of the above variables. Data are now available on the OECD Outlook diskette. See *http://www.oecd.org/eco/data/data1.htm.*
3. Source data for volumes for the eleven euro countries do not have the same base year and are, therefore, re-based to a common 1999 base year. Export and import series are corrected for trade within the euro area.
4. The euro conversion rates are calculated as described in: "Joint communiqué on the determination of the irrevocable conversion rates for the euro", 2 May 1998 (*http://www.ecb.int/emi/pub/htm_jcom.htm*).
5. See Winder, C.C.A, "On the construction of European area-wide aggregates: a review of the issues and empirical evidence", *De Nederlandsche Bank Research Memorandum*, No. 499, 1997 (available on *http://www.dnb.nl/english/publicationsfrset.htm*).

Annex III

Measuring asymmetric economic shocks

Much of the empirical literature on optimum currency areas in general, and EMU in particular, has focused on quantifying the importance of asymmetric shocks across euro countries. To the extent possible, the literature has distinguished between various sources of output shocks, so that those induced by macroeconomic policy can be singled out. Vector autoregression (VAR), given its emphasis on tracing the effect through time of different shocks on economic variables, has been one of the main methods used to evaluate the importance of asymmetric shocks between countries. A VAR model typically consists of a system of jointly estimated reduced-form equations that places few, or no restrictions on the lag structure, so that each variable is regressed on a common number of lags for all variables (including itself). Since a VAR system generally treats all the variables as endogenous, there is typically an estimated equation for each variable. For example, a bi-variate VAR model combining output growth and inflation can be used to examine the effect of aggregate supply and demand shocks on both variables.

The main difficulty with the VAR approach is to decompose the reduced-form equation residuals into structural shocks, *i.e.* shocks that can be given an economic interpretation such as an aggregate demand or supply shock. To that extent, the VAR technique confronts the standard problem of simultaneous co-movement between variables, such as output and inflation, which makes it impossible to properly identify the underlying aggregate demand and supply functions without imposing further constraints on the reduced-form equations. The first generation of VAR models more or less mechanically and arbitrarily restricted some variables to have no contemporaneous effects on the others. Such an approach is largely inconsequential if the model is estimated primarily to provide a summary characterisation of the co-movement in the variables included in the VAR or for short-term forecasting purposes. However, as illustrated by Cooley and Leroy (1985) in a seminal paper, the use of a VAR model based on a supposedly atheoretical identifying scheme is inappropriate for the analysis of conditional policy scenarios since the results inferred can be seriously misleading.

In order to legitimise the use of VAR models to address policy issues, Sims (1986), Bernanke (1986) and Blanchard and Watson (1986) introduced "structural" VARs (or SVARs). Each researcher proposed slightly different contemporaneous identifying restrictions that were explicitly drawn from economic theory. As an extension, Blanchard and Quah (1989) and Shapiro and Watson (1988) proposed to identify the structural shocks by imposing restrictions on their long-run effects, claiming that long-run restrictions are often easier to justify on the basis of economic theory than contemporaneous restrictions. For example, Bayoumi and Eichengreen (1992) were among the first to apply the Blanchard and Quah approach across European countries. They estimated a bi-variate VAR model of real output growth and inflation for each of the EU countries and imposed the restriction that only supply shocks can have an effect on the level of output in the long run. While this allows for the decomposition of historical aggregate output disturbances into supply and demand shocks, the VAR technique alone provides no information about the degree of shock asymmetry across countries. Bayoumi and Eichengreen used VAR techniques to identify supply and demand shocks to production, and then in order to assess the degree of symmetry looked at the correlations of the supply shocks across the potential EMU members and compared them with US regions. Since then, there have been numerous applications of the SVAR methodology to examine cross-country differences in the relative contribution of exogenous policy and non-policy shocks, as well as differences in the propagation mechanism of these shocks.

The SVAR methodology offers several advantages. First, since the set of restrictions required by the SVAR approach is relatively small and usually common across countries, it facilitates cross-country comparisons, especially when a large number of countries is involved. Second, given that the identification restrictions are explicit, it is relatively easy to form a judgement about the merit of the economic assumptions underlying these restrictions. Third, although the restrictions imposed cannot usually be tested, a plausibility check can be made *ex post*. For instance, in the example given above based on a long-run restriction, one can verify whether the shocks interpreted as supply and demand shocks have the expected short-run effect, which is to change output growth and inflation in opposite directions for the supply shock and the same direction for the demand shock. Finally, the method allows for the computation of confidence intervals around the estimates of the dynamic effects of the identified shocks.

Nonetheless, SVAR applications suffer from several weaknesses. First, regardless of bow strongly one believes in the theoretical underpinnings of the set of restrictions, the accuracy of estimates still depends largely on the restrictions' identifying power, which may be relatively weak for some countries. Second, SVARs based on long-run restrictions require that a sufficiently long span of data is available, so that past shocks have had enough time to work their effect through the system to allow for a distinction between permanent shocks on one band, and shocks that have a transitory but persistent effect, on the other. Yet, such a span of data is often not available or will encompass structural breaks and parameter instability which are usually not taken into account. Third, since the method is based on a system of linear equations, it rules out non-linear and/or asymmetric effects that certain shocks may have on certain variables, for instance demand shocks on inflation.

Given these limitations, VAR exercises should be regarded as a complement, rather than a substitute, to more disaggregated analysis of similarities and differences in cross-country production structures and how these are evolving over time. In this regard, one of the main strengths of VAR models – compactness and homogeneity of treatment across countries – is also a weakness to the extent that it ignores potentially important country-specific institutional or structural characteristics that can explain some counter-intuitive results or simply deepen the analysis.

Annex IV

Cluster analysis and EU convergence

Clustering is a statistical method used to sort individual observations of a data sample into fairly homogeneous sub-groups, *i.e.* those containing elements that share similar characteristics. The main objective is to identify separate clusters on the basis of a well-defined statistical criterion. The criterion used to consider whether groups of elements belong to separate clusters is essentially based on a comparison of the distance between their means and the mean distance within the clusters. The method has often been used in the past to make an operational classification of the detailed information contained in data banks derived from household surveys. It has also been used by international organisations to classify countries on the basis of economic convergence criteria which offer an alternative classification to the ones based on geographical or political criteria (Berlage and Terweduwe, 1988).

Methodological review

There are numerous methods of clustering which differ in the approach adopted in the formation of groups. One method is to optimise, for a given number of groups, the allocation of individuals to different groups, the problem then being one of optimising a variable defined relative to the groups and to the individuals forming them. The variable could, for example, be the intergroup variance:

$$IV = \frac{1}{g} \cdot \sum_{i=1}^{g} (\bar{x}_i - \bar{x})^2 \qquad [1]$$

where g is the number of groups, $\bar{x}_i$ is the mean element of group i, and $\bar{x}$ the mean element of the population.

Another category encompasses hierarchical methods. The aggregative hierarchical method proceeds by iteration to take a set of groups each consisting of one individual and determine at each stage the two groups that will be aggregated at the next stage, and so on until there is only one group left. Likewise there are divisive hierarchical methods which take a single group and determine at each stage the division that will be made, and in which group it will be made, at the following stage. In both cases it is necessary to find a variable that will make it possible to choose at each stage the groups that will be aggregated or divided. Both approaches thus give for any number x of groups the allocation of n individuals to them: this is the topology of the system after x or n-x stages, according to whether the method is divisive or aggregative.

Regardless of the method adopted, optimisation or hierarchicals, the optimal number of groups must be determined *a priori*. There are different ways of doing this, but none is free of judgement. Most are based on variance analysis or an optimisation process involving some measure of variance. Once the optimal number of groups is determined and their composition known, a fairly precise idea of the degree of homogeneity of the population as a whole is obtained, as well as information about similarities between individuals.

The approach chosen in this study belongs to the category of aggregative hierarchical methods. The principle is iterative: given n individuals, and initially as many groups, the procedure is to merge at each stage the two most similar groups until there is only one group left. Then it is decided at which stage to stop the process in order to have the optimal number of groups. This process involves two criteria: proximity of groups and optimal number of groups.

The first criterion generally necessitates the definition of a distance over all the groups which implies taking into account only two groups at a time in determining which groups to merge. Consequently merging of the two closest groups independently of the global context may produce an outlier (this point is discussed in detail later on). This led Ward (1963) to propose a globally oriented method of hierarchical aggregative clustering. The choice of groups to be merged at each stage is thus not determined by the distance separating groups, but by a criterion of least loss of information, characterised by the sum of the internal variances of the groups.

$$LI = \sum_{i=1}^{g} \left(\frac{1}{n_g} \cdot \sum_{j=1}^{n_g} (x_i^j - \bar{x}_i)^2 \right) \qquad [2]$$

At each stage one chooses the groups to merge so as to minimise the increase in the sum of variances.

The "optimal number of groups" criterion lends itself less easily to formalisation. Although there are many methods to determine this number, they do not have the elegant simplicity of the measures described above. They include:

– the maximisation of $C = \dfrac{trace(B)}{g-1} \bigg/ \dfrac{trace(W)}{n-g}$ according to g [3]

where the matrices B and W represent the dispersion between groups and within groups, respectively and g, the number of groups.

– the minimisation of $g^2 \bullet \det(W)$ according to g [4]

Although the latter generally gives more intuitive results, the two methods seem to be effective only if the groups are relatively spherical in form and clearly separated. Each of the decision variables described have their advantages and disadvantages. They may be effective for certain data configurations and for an intuitive notion of what a group is, but give absurd results in other configurations. It is, therefore, crucial to define the type of regrouping desired in order to select the most suitable variables. The simplest procedure is to make tests on an easily reproducible bivariate set so as to be able to judge the results and the adequacy of the different methods.

Application

Clustering is applied in this study to assess the degree of economic convergence of 14 European Union countries.* The aim is to determine the optimal regrouping of countries by reference to the values taken by six economic variables (output growth, current account as a per cent of GDP, private-sector employment growth, long-term interest rates, government budget surplus as a percent of GDP and inflation) over the period from 1979 to 1996. The application involves a combination of factor analysis and hierarchical classification. The process can be summarised as follows:

- *Data preparation*: all the variables are standardised on a scale of 0 to 100 and harmonised in such a way that a higher number can be loosely interpreted as "better" economic performance.
- *Factor analysis*: factor analysis is applied prior to classification in order to lower the number of relevant variables and to increase the descriptive power of the data by smoothing the observations.
- *Clustering*: the classification of countries into sub-groups is based on the two main factors that explain a large proportion of the variance of each variable rather than on all six variables. The Ward criteria combined with a measure of distance (square of Euclidian distance) have been used for the classification.
- *Description of clusters*: various statistical measures of deviations between the internal values of a class and a global value are calculated so as to establish a hierarchical ranking of the classes.

Main results

The main results are reported in Table A1. It shows the classification obtained for each year since 1992 and, before that, for every second year since 1980. The columns numbered from 1 to 10 represent the different clusters of countries. The maximum number of clusters was fixed (somewhat arbitrarily) at 10, although sufficiently large clusters were always identified to leave at least three groups empty every year. The scale from 1 to 10 can also be loosely interpreted as providing an indication of economic performance. Indeed, each variable was scaled in a way so that the closer a country is from group 1, the better its overall economic performance in terms of high output growth, low inflation, etc.

Not surprisingly, the results support the view that the creation of the single market and the conditions for participation in EMU have led to higher convergence in economic performance across EU countries over recent years. For instance, from 1994 to 1996, there is a group of six countries (Germany, France, Austria, Belgium, Netherlands and Sweden) which always fall in one of two closely related clusters (groups 3 and 4). In addition, Italy and Finland are included in either group 3 or 4 twice during the same three years. A relatively large cluster is also found in 1993 with 7 countries falling into group 7. The relatively poor economic performance in 1993 in several continental european countries (many were in recession that year) explains the shift in the main cluster from groups 3 or 4 in 1994 to group 7 in 1993. Prior to 1993, one has to go back to the early eighties to find relatively large clusters (group 8 and 9), a period during which most countries also faced difficult economic conditions. The years from 1984 to 1992 show a relatively larger dispersion of the countries, characterised by relatively small (except 1988) and heterogeneous

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* Luxembourg is the only EU member not included in the sample.

Table A1. **Cluster classification of EU countries**[1]

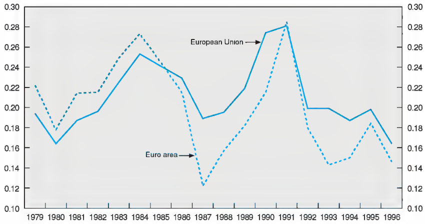
Cluster:	1	2	3	4	5	6	7	8	9	10
1996		IRL	AUT, GER, IT, POR, SP, UK	BEL, DK, FIN, FR, NL, SWE				GR		
1995		IRL, FIN	BEL, DK, FR, NL	GER, AUT, SP, UK, SWE	IT, POR			GR		
1994		IRL, UK, DK	BEL, FR, GER, NL, FIN	AUT, IT, SWE	SP, POR			GR		
1993			DK, IRL, NL	AUT, UK			GER, FR, BEL, FIN, IT, SP, SWE	POR	GR	
1992		IRL	NL	GER, FR, AUT, BEL, DK	SP		UK, FIN, SWE	IT, POR	GR	
1990		GER, AUT, IRL, NL		FR, BEL, DK, SWE	UK, FIN	SP		IT	POR	GR
1988		FR, BEL, UK, SP, FIN	GER, AUT, NL	DK, IRL, SWE	IT	POR			GR	
1986		DK	GER, AUT, FIN, NL	FR, BEL, UK, SWE	IT, SP			IRL	GR	
1984			GER, NL	AUT, FIN, SWE, UK	BEL, FR	DK		IT, SP, IRL	GR	POR
1982				AUT, FIN	UK		GER, NL	FR, SP, BEL, SWE	IT, DK, IRL, GR	POR
1980		FIN		GER, AUT	NL, BEL			UK, SP, DK, SWE	IT, GR, IRL, POR	

Note: Austria (AUT), Belgium (BEL), Denmark (DK), Finland (FIN), France (FR), Germany (GER), Greece (GR), Ireland (IRL), Italy (IT), Netherlands (NL), Portugal (POR), Spain (SP), Sweden (SWE), United Kingdom (UK).

1. In the application of the methodology, the maximum number of distinct groups allowed was set to 10. Although this number is chosen somewhat arbitrarily, the results did not differ substantially when a maximum of 20 clusters was allowed. In addition, given the scale from one to ten, two consecutive clusters can be seen as very closely related. Finally, although the emphasis is on convergence rather than performance, the closer a country belongs to group 1, the better its overall economic performance in terms of high output growth, low inflation, etc.

Source: OECD Secretariat.

Figure A1. **Coefficient of variation of the index of performance across countries**



Source: OECD Secretariat.

clusters. Over that period, Germany, Austria and the Netherlands are the only three countries systematically found to belong to closely related groups.

An alternative way to present the results from clustering analysis is to calculate for each country an index of overall economic performance. As in the previous case, the six economic variables are normalised and aggregated so that the lower the value of the index (on a scale of 1 to 100) the better the economic performance. In order to assess the degree of convergence over time, the coefficient of variation of this index across all countries has been calculated. Figure Al shows the value over time of the coefficient of variation across the whole set of countries as well as across a subset comprising the euro area countries. A decline in the coefficient of variation indicates convergence.

Overall, the results suggest that relatively high convergence was obtained in the early eighties, around 1987-88, in 1993 and then in 1996. Two of these periods (1980 and 1993) were characterised by recessions in a large number of countries. Although the two lines shown on the graph exhibit similar cycles, there are nevertheless two notable differences. First, the variation in the degree of convergence over time is higher in the case when EU "outs" are excluded from the calculation of the coefficient of variation. Secondly, there is stronger evidence of a trend increase in convergence among the euro-area countries than among the whole group of EU countries.

Annex V

Regional data

The sub-national data used in the various regional empirical exercises presented in this study are based on the Eurostat NUTS1 classification for euro-area countries and the regional disaggregation adopted by the United States Bureau of Economic Analysis (see Table A2). Considerable effort has gone into harmonising regional data concepts, definitions and collection methods at the European level. Nonetheless, there are a number of considerations that need to be taken into account when using regional data. The main caveat is that NUTs data are based on administrative units, but are often used for economic analyses. Measures of disparities between regions, such as income per capita, productivity and regional output, could be exaggerated due to the different sources and methods of data compilation. For example, data on population, unemployment and household income are collected where people live, whereas other data (notably GDP) are assessed where people work. Indicators such as GDP per capita are therefore distorted; cities typically have high GDP per capita, produced by commuters living in the surrounding regions and consequently these neighbouring regions tend to have a low GDP per capita. The size of units chosen is also important. Smaller units tend to increase the scale of inter-regional disparities and output volatility. Therefore, in order to draw conclusions about the scale of disparities and volatility from one country, and or region to another, similarly sized units of disaggregation should be used.

Table A2. Regional classification and characteristics in EU member States and the United States

Country code	Regional name	Area (km^2)	1994 population (in thousands)
Belgium		30 518	10 116
BE1	Reg. Bruxelles-Cap./Brussels HFDST.GEW	161	950
BE2	Vlaams Gewest	13 512	5 857
BE3	Région Wallonne	16 844	3 309
Denmark			
DK	Danmark	43 080	5 205
Germany		356 718	81 438
DE1	Baden-Württemberg	35 751	10 253
DE2	Bayern	70 554	11 893
DE3	Berlin	889	3 474
DE4	Brandenburg	29 480	2 537
DE5	Bremen	404	682
DE6	Hamburg	755	1 704
DE7	Hessen	21 114	5 974
DE8	Mecklenburg-Vorpommern	23 171	1 838
DE9	Niedersachsen	47 348	7 682
DEA	Nordrhein-Westfalen	34 072	17 788
DEB	Rheinland-Pfalz	19 846	3 939
DEC	Saarland	2 570	1 084
DED	Sachsen	18 412	4 596
DEE	Sachsen-Anhalt	20 446	2 769
DEF	Schleswig-Holstein	15 732	2 702
DEG	Thüringen	16 174	2 525
Greece		131 625	10 426
GR1	Voreia Ellada	56 457	3 363
GR2	Kentriki Ellada	53 902	2 576
GR3	Attiki	3 808	3 486
GR4	Nisia Aigaiou, Kriti	17 458	1 001
Spain		504 790	39 149
ES1	Noroeste	45 297	4 338
ES2	Noreste	70 366	4 053
ES3	Madrid	7 995	5 001
ES4	Centro (E)	215 025	5 271
ES5	Este	60 249	10 685
ES6	Sur	98 616	8 266
ES7	Canarias	7 242	1 535
France		543 965	57 900
FR1	Ile de France	12 012	10 961
FR2	Bassin Parisien	145 645	10 431
FR3	Nord-Pas-de-Calais	12 414	3 991
FR4	Est	48 030	5 111
FR5	Ouest	85 099	7 604
FR6	Sud-Ouest	103 599	6 065
FR7	Centre-Est	69 711	6 865
FR8	Méditerranée	67 455	6 873
FR9	Départements d'Outre-Mer	89 287	1 587

Table A2. **Regional classification and characteristics in EU member States and the United States** *(cont.)*

Country code	Regional name	Area (km²)	1994 population (in thousands)
Sweden			
SE	Sverige	410 934	8 781
Ireland			
IR	Ireland	68 895	3 587
Italy		301 316	57 204
IT1	Nord Ouest	34 081	6 084
IT2	Lombardia	23 872	8 906
IT3	Nord Est	39 816	6 517
IT4	Emilia-Romagna	22 124	3 923
IT5	Centro (I)	41 142	5 788
IT6	Lazio	17 227	5 189
IT7	Abruzzo-Molise	15 232	1 597
IT8	Campania	13 595	5 727
IT9	Sud	49 430	6 759
ITA	Sicilia	25 707	5 054
ITB	Sardegna	24 090	1 658
Luxembourg			
LU	Luxembourg (Grand-Duché)	2 586	404
Netherlands		41 029	15 382
NL1	Noord-Nederland	11 388	1 619
NL3	West-Nederland	10 495	3 163
NL32	Noord-Holland	11 854	7 204
NL4	Zuid-Nederland	7 292	3 395
Austria		83 859	8 030
AT1	Ostösterreich	23 554	3 381
AT2	Südösterreich	25 921	1 764
AT3	Westösterreich	34 384	2 885
Portugal		91 906	9 902
PT1	Continente	88 798	9 406
PT2	Açores	22 330	240
PT3	Madeira	779	256
Finland		338 147	5 088
FI1	Manner-Suomi	336 595	5 063
FI2	Ahvenanmaa/Åland	1 552	25
United Kingdom		241 751	58 395
UK1	North	15 416	3 100
UK2	Yorkshire and Humberside	15 410	5 026
UK3	East Midlands	15 628	4 103
UK4	East Anglia	12 570	2 106
UK5	South East (UK)	27 224	17 871
UK6	South West (UK)	23 828	4 796
UK7	West Midlands	13 004	5 295
UK8	North West (UK)	7 342	6 412
UK9	Wales	20 766	2 913
UKA	Scotland	77 080	5 132
UKB	Northern Ireland	13 483	1 642

Table A2. **Regional classification and characteristics in EU member States and the United States** *(cont.)*

Country code	Regional name	Area (km^2)	1994 population (in thousands)
United States		9 166 723	265 179
NE	New England	163 195	13 326
ME	Mideast	288 953	44 499
GL	Great Lakes	631 860	43 713
PL	Plains	1 316 055	18 468
ST	South East	1 373 995	64 300
SW	South West	1 464 675	28 532
RO	Rocky mountain	1 322 080	8 378
FW	Far West	2 605 910	43 862

Source: Eurostat (1997*b*), *Region Statistical Yearbook* and Bureau of Economic Analysis.

BASIC STATISTICS: INTERNATIONAL COMPARISONS

	Units	Reference period[1]	Australia	Austria	Belgium	Canada	Czech Republic	Denmark	Finland	France	Germany	Greece
Population												
Total	Thousands	1996	18 289	8 060	10 157	29 964	10 316	5 262	5 125	58 380	81 877	10 465
Inhabitants per sq. km	Number	1996	2	96	333	3	131	122	15	106	229	79
Net average annual increase over previous 10 years	%	1996	1.3	0.6	0.3	1.3	0	0.3	0.4	0.5	3	0.5
Gross domestic product (GDP)												
At current prices and current exchange rates	Bill. US$	1996	398.9	228.7	268.2	579.2	56.2	174.9	125.1	1 536.6	2 353.5	91.2 (95)
Per capita	US$	1996	21 812	28 384	26 409	19 330	5 445	33 230	24 420	26 323	28 738	8 722 (95)
At current prices using current PPPs[2]	Bill. US$	1996	372.7	172.4	222	645.1	..	118	96.7	1 198.6	1 736.1	133.5
Per capita	US$	1996	20 376	21 395	21 856	21 529	..	22 418	18 871	20 533	21 200	12 743
Average annual volume growth over previous 5 years	%	1996	3.9	1.6	1.2	2.2	2	2.2	1.6	1.2	1.4	1.3 (95)
Gross fixed capital formation (GFCF)	% of GDP	1996	20.3	23.8	17.3	17.7	33	16.7	16.1	17.4	20.6	17 (95)
Average annual volume growth over previous 5 years	%	1996	5.6	2.1	0.3	2.2	9.4	2	–4.1	–1.5	0.2	0.5 (95)
Gross saving ratio[3]	% of GDP	1996	18	21.9	22.2	17.8	..	17.6	19.6	18.7	20	16 (95)
Indicators of living standards												
Private consumption per capita using current PPPs[2]	US$	1996	12 596	12 152	13 793	12 959	..	12 027	10 282	12 506	12 244	9 473
Passenger cars, per 1 000 inhabitants	Number	1994	460	433	416	466	282	312	368	430	488	199
Telephones, per 1 000 inhabitants	Number	1994	496	466	449	576	209	604	551	547	483[5]	478
Television sets, per 1 000 inhabitants	Number	1993	489	479	453	618	476	538	504	412	559	202
Doctors, per 1 000 inhabitants	Number	1995	2.2 (91)	2.7	3.7 (94)	2.2	2.9	2.9 (94)	2.8	2.9	3.4	3.9 (94)
Wages and prices (average annual increase over previous 5 years)												
Wages (earnings or rates according to availability)	%	1996	1.7	5.2	2.7	2.4	..	3.2	3.8	2.6	4.2	11.8
Consumer prices	%	1996	2.4	2.9	2.2	1.4	11.9	1.9	1.5	2	3.1	11.6
Foreign trade												
Exports of goods, fob*	Mill. US$	1996	60 288	57 870	170 223[4]	202 320	21 910	51 030	40 576	288 450	521 263	11 501
As % of GDP	%	1996	15.1	25.3	63.5	34.9	39	29.2	32.4	18.8	22.1	12.9 (95)
Average annual increase over previous 5 years	%	1996	7.5	7.1	7.6	9.7	..	6.2	12.1	6.3	5.4	5.8
Imports of goods, cif*	Mill. US$	1996	61 374	67 376	160 917[4]	170 931	27 721	44 987	30 911	271 348	455 741	27 402
As % of GDP	%	1996	15.4	29.5	60	29.5	49.3	25.7	24.7	17.7	19.4	30.4 (95)
Average annual increase over previous 5 years	%	1996	9.7	5.9	5.9	7.7	..	5.6	7.3	3.9	3.3	6.6

* At current prices and exchange rates.

1. Unless otherwise stated.
2. PPPs = Purchasing Power Parities.
3. Gross saving = Gross national disposable income minus private and government consumption.
4. Data refer to the Belgo-Luxembourg Economic Union.
5. Data refer to western Germany.

BASIC STATISTICS: INTERNATIONAL COMPARISONS *(cont.)*

	Units	Reference period[1]	Hungary	Iceland	Ireland	Italy	Japan	Korea	Luxembourg	Mexico	Netherlands	New Zealand
Population												
Total	Thousands	1996	10 193	270	3 621	57 473	125 864	45 545	418	96 582	15 494	3 640
Inhabitants per sq. km	Number	1996	77	3	52	191	333	458	161	48	380	14
Net average annual increase over previous 10 years	%	1996	–0.3	1.1	0.2	0	0.4	1	1.3	2	0.6	1.1
Gross domestic product (GDP)												
At current prices and current exchange rates	Bill. US$	1996	43.7 (95)	7.3	70.7	1 214.2	4 595.2	484.8	17	329.4	396	65.9
Per capita	US$	1996	4 273 (95)	27 076	19 525	21 127	36 509	10 644	40 791	3 411	25 511	18 093
At current prices using current PPPs[2]	Bill. US$	1996	..	6.3	68.8	1 148	2 924.5	618.5	13.5	751.1	324.5	63.6
Per capita	US$	1996	..	23 242	18 988	19 974	23 235	13 580	32 416	7 776	20 905	17 473
Average annual volume growth over previous 5 years	%	1996	–2.4 (95)	1.5	7.1	1	1.5	7.1	4.8	1.7	2.3	3.7
Gross fixed capital formation (GFCF)	% of GDP	1996	19.3 (95)	17.5	17.2	17	29.7	36.8	20.8	18	19.7	20.9
Average annual volume growth over previous 5 years	%	1996	–0.9 (95)	–1.4	6	–1.4	1.3	6.9	0.2	–0.7	2.2	9.6
Gross saving ratio[3]	% of GDP	1996	..	15.6	21.7	20.5	31.4	34.2	37.5	22.7	25.7	16
Indicators of living standards												
Private consumption per capita using current PPPs[2]	US$	1996	..	14 244	10 020	12 224	13 912	7 354	17 811	5 045	12 477	10 895
Passenger cars, per 1 000 inhabitants	Number	1994	212	434	264	517	342	115	544	91	383	457
Telephones, per 1 000 inhabitants	Number	1994	170	557	350	429	480	397	564	93	509	470
Television sets, per 1 000 inhabitants	Number	1993	427	335	301	429	618	215	261	150	491	451
Doctors, per 1 000 inhabitants	Number	1995	3.4	3.0 (94)	1.7	1.6 (92)	1.8 (94)	1.1	2.2 (93)	1.6	..	2.1
Wages and prices (average annual increase over previous 5 years)												
Wages (earnings or rates according to availability)	%	1996	..	..	3.7	3.5	1.8	..	..	–1.6	2.4	1.5
Consumer prices	%	1996	23.2	2.6	2.2	4.5	0.7	5.3	2.4	19.7	2.5	2
Foreign trade												
Exports of goods, fob*	Mill. US$	1996	15 674	1 891	48 416	250 842	411 067	129 715	..	96 000	203 953	14 316
As % of GDP	%	1996	35.9	26	68.5	20.7	8.9	26.8	..	29.1	51.5	21.7
Average annual increase over previous 5 years	%	1996	8.9	4	14.8	8.2	5.5	12.5	..	17.6	8.9	8.2
Imports of goods, cif*	Mill. US$	1996	18 105	2 032	35 763	206 904	349 149	150 340	..	89 469	184 389	14 682
As % of GDP	%	1996	41.4	27.9	50.6	17	7.6	31	..	27.2	46.6	22.3
Average annual increase over previous 5 years	%	1996	9.6	3.4	11.5	2.5	8	13.9	..	12.4	7.8	11.8

* At current prices and exchange rates.
1. Unless otherwise stated.
2. PPPs = Purchasing Power Parities.
3. Gross saving = Gross national disposable income minus private and government consumption.
4. Data refer to the Belgo-Luxembourg Economic Union.
5. Data refer to western Germany.

BASIC STATISTICS: INTERNATIONAL COMPARISONS *(cont.)*

	Units	Reference period[1]	Norway	Poland	Portugal	Spain	Sweden	Switzerland	Turkey	United Kingdom	United States	Euro area[7]
Population												
Total	Thousands	1996	4 370	38 618	9 935	39 270	8 901	7 085	62 695	58 782	265 557	289 810
Inhabitants per sq. km	Number	1996	13	123	108	78	20	172	80	240	28	122
Net average annual increase over previous 10 years	%	1996	0.5	0.3	–0.1	0.2	0.6	0.8	2	0.3	1	1.0
Gross domestic product (GDP)												
At current prices and current exchange rates	Bill. US$	1996	157.8	117.9 (95)	103.6	584.9	251.7	294.3	181.5	1 153.4	7 388.1	6 882.5
Per capita	US$	1996	36 020	3 057 (95)	10 425	14 894	28 283	41 411	2 894	19 621	27 821	23 748
At current prices using current PPPs[2]	Bill. US$	1996	106.7	..	130.1	587.2	171.4	180.6	383.3	1 095.5	7 388.1	5 590.1
Per capita	US$	1996	24 364	..	13 100	14 954	19 258	25 402	6 114	18 636	27 821	19 289
Average annual volume growth over previous 5 years	%	1996	4.1	2.2 (95)	1.5	1.3	1	0.1	4.4	2.2	2.8	1.3
Gross fixed capital formation (GFCF)	% of GDP	1996	20.5	17.1 (95)	24.1	20.1	14.8	20.2	25	15.5	17.6	19.1
Average annual volume growth over previous 5 years	%	1996	2.8	5.4 (95)	2.2	–1	–2.6	–0.8	6.9	1.3	6.9	–0.5
Gross saving ratio[3]	% of GDP	1996	29.9	..	21.6	20.7	16	27.1	22.3	14.6	16.6	21.6
Indicators of living standards												
Private consumption per capita using current PPPs[2]	US$	1996	11 593	..	8 522	9 339	10 096	15 632	4 130	11 865	18 908	11 568
Passenger cars, per 1 000 inhabitants	Number	1994	381	186	357	351	406 (93)	451	47	372	565	445
Telephones, per 1 000 inhabitants	Number	1994	554	131	350	371	683	597	201	489	602	436
Television sets, per 1 000 inhabitants	Number	1993	427	298	190	400	470	400	176	435	816	455
Doctors, per 1 000 inhabitants	Number	1995	2.8	2.3	3	4.1 (93)	3.1	3.1 (94)	1.2	1.6 (94)	2.6 (94)	3
Wages and prices (average annual increase over previous 5 years)												
Wages (earnings or rates according to availability)	%	1996	3.2	..	..	5.8	4.8	..	..	4.9	2.7	4.3
Consumer prices	%	1996	1.9	..	5.6	4.7	2.7	2.2	81.6	2.7	2.9	3.4[6]
Foreign trade												
Exports of goods, fob*	Mill. US$	1996	49 576	24 417	24 614	102 067	84 836	79 581	23 301	259 941	625 075	912 440
As % of GDP	%	1996	31.4	20.7	23.8	17.5	33.7	27	12.8	22.5	8.5	13.3
Average annual increase over previous 5 years	%	1996	7.8	..	8.6	11.2	9	5.3	11.1	7	8.2	10.6
Imports of goods, cif*	Mill. US$	1996	35 575	37 185	35 192	121 838	66 825	78 052	43 094	287 033	795 289	740 545
As % of GDP	%	1996	22.5	31.5	34	20.8	26.5	26.5	23.7	24.9	10.8	10.8
Average annual increase over previous 5 years	%	1996	6.9	..	6.1	5.5	6	3.2	15.1	6.5	10.3	5.4

* At current prices and exchange rates.

[1] Unless otherwise stated.

[2] PPPs = Purchasing Power Parities.

[3] Gross saving = Gross national disposable income minus private and government consumption.

[4] Data refer to the Belgo-Luxembourg Economic Union.

[5] Data refer to western Germany.

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